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RUSSIAN COMBAT METHODS IN WORLD WAR II



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RUSSIAN COMBAT METHODS IN WORLD WAR II

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DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *28 August 1951*

DA Pamphlet 20-230, 1 November 1950, is changed as follows:

Page 31, par. 2, first, third, and fifth lines: change the word "lanes" to read "zones."

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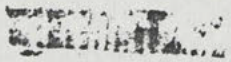
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PREFACE

This pamphlet was prepared by a committee of former German officers at the EUCOM Historical Division Interrogation Enclosure, Neustadt, Germany, in late 1947 and early 1948. All of these officers had extensive experience on the eastern front during the period 1941–45. The principal author, for example, commanded in succession a panzer division, a corps, a panzer army, and an army group.

The reader is reminded that publications in the GERMAN REPORT SERIES were written by Germans from the German point of view. For instance, the "Introduction" and "Conclusions" to *Russian Combat Methods in World War II* present the views of the German author without interpretation by American personnel. Throughout this pamphlet, Russian combat methods are evaluated in terms of German combat doctrine, and Russian staff methods are compared to those of the German General Staff. Organization, equipment, and procedures of the German and Russian Armies differed considerably from those of the United States Army. Tactical examples in the text have been carefully dated, and an effort has been made to indicate the progress of the Russian Army in overcoming the weaknesses noted in the early stages of the war.

In the preparation of this revised edition, the German text has been retranslated, and certain changes in typography and chapter titles have been made to improve clarity and facilitate its use. The revised edition is considered to be just as reliable and sound as the text prepared by the German committee. The authors' prejudices and defects, whatever they may be, find the same expression in the following translation as they do in the original German.

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This pamphlet supersedes MS #T-22, "Peculiarities of Russian Warfare," published by the Historical Division, Special Staff, U. S. Army, in June 1949.

PART ONE
INTRODUCTION

The only written material available for the preparation of this manuscript consisted of a few memoranda in diary form and similar notes of a personal nature. *Russian Combat Methods in World War II* is therefore based to a preponderant degree on personal recollections and on material furnished by a small group of former German commanders who had special experience in the Eastern Campaign. For that very reason, it cannot lay claim to completeness. This report is limited to a description of the characteristic traits of the Russian soldier, and their influence on the conduct of battle. The political, economic, and social conditions of the country, although influential factors, could only be touched upon. Detailed treatment of climate and terrain—indispensable to an understanding of Russian methods of warfare—has been omitted intentionally since those subjects are discussed in other manuscripts.

Russian combat methods have more and more become a topic of vital concern. Propaganda and legend already have obscured the facts. The most nearly correct appraisal will be arrived at by knowing the peculiarities of the Russian territory and its inhabitants, and by analyzing and accurately evaluating the sources from which they derive their strength. There is no better method than a study of World War II, the struggle in which the characteristics of country and people were thrown into bold relief. Although the passage of time may have diminished the validity of these experiences, they nevertheless remain the soundest basis for an evaluation. The war potential of the Soviet Union may be subject to change; no doubt it has increased during the last few years and will increase further, at least until the end of the current Five Year Plan. The very latest implements of war are known to have been further developed and produced in quantity, and new offensive and defensive weapons perfected. Technological advances will alter the external aspects of warfare, but the character and

peculiarities of the Russian soldier and his particular methods of fighting remain unaffected by such innovations. Nor will the characteristics of Russian topography change during the next few years. In these decisively important aspects, therefore, the German experiences of World War II remain fully valid.

PART TWO

THE RUSSIAN SOLDIER AND RUSSIAN CONDUCT OF BATTLE

Chapter 1

Peculiarities of the Russian Soldier

It is possible to predict from experience how virtually every soldier of the western world will behave in a given situation—but not the Russian. The characteristics of this semi-Asiatic, like those of his vast country, are strange and contradictory. During the last war there were units which one day repulsed a strong German attack with exemplary bravery, and on the next folded up completely. There were others which one day lost their nerve when the first shell exploded, and on the next allowed themselves, man by man, literally to be cut to pieces. The Russian is generally impervious to crises, but he can also be very sensitive to them. Generally, he has no fear of a threat to his flanks, but at times he can be most touchy about flanks. He disregards many of the old established rules of tactics, but clings obstinately to his own methods.

The key to this odd behavior can be found in the native character of the Russian soldier who, as a fighter, possesses neither the judgment nor the ability to think independently. He is subject to moods which to a Westerner are incomprehensible; he acts by instinct. As a soldier, the Russian is primitive and unassuming, innately brave but morosely passive when in a group. These traits make him in many respects an adversary superior to the self-confident and more demanding soldiers of other armies. Such opponents, however, can and must, by their physical and mental qualities, achieve not only equality, but also the superiority necessary to defeat the Russian soldier.

Disregard for human beings and contempt of death are other characteristics of the Russian soldier. He will climb with complete indifference and cold-bloodedness over the bodies of hundreds of fallen comrades, in order to take up the attack on the same spot. With the

same apathy he will work all day burying his dead comrades after a battle. He looks toward his own death with the same resignation. Even severe wounds impress him comparatively little. For instance, a Russian, sitting upright at the side of the street, in spite of the fact that both lower legs were shot away asked with a friendly smile for a cigarette. He endures cold and heat, hunger and thirst, dampness and mud, sickness and vermin, with equanimity. Because of his simple and primitive nature, all sorts of hardships bring him but few emotional reactions. His emotions run the gamut from animal ferocity to the utmost kindliness; odious and cruel in a group, he can be friendly and ready to help as an individual.

In the attack the Russian fought unto death. Despite most thorough German defensive measures he would continue to go forward, completely disregarding losses. He was generally not subject to panic. For example, in the break-through of the fortifications before Bryansk in October 1941, Russian bunkers, which had long since been bypassed and which for days lay far behind the front, continued to be held when every hope of relief had vanished. Following the German crossing of the Bug in July 1941, the fortifications which had originally been cleared of the enemy by the 167th Infantry Division were reoccupied a few days later by groups of Russian stragglers, and subsequently had to be painstakingly retaken by a division which followed in the rear. An underground room in the heart of the citadel of Brest Litovsk held out for many days against a German division in spite of the employment of the heaviest fire power.

The sum of these most diverse characteristics makes the Russian a superior soldier who, under the direction of understanding leadership, becomes a dangerous opponent. It would be a serious error to underestimate the Russian soldier, even though he does not quite fit the pattern of modern warfare and the educated fighting man. The strength of the Western soldier is conscious action, controlled by his own mind. Neither this action on his own, nor the consciousness which accompanies the action, is part of the mental make-up of the Russian. But the fact must not be ignored that a change is taking place also in this respect.

The difference between the Russian units in World War I and those in World War II is considerable. Whereas in the earlier war the Russian Army was a more or less amorphous mass, immovable and without individuality, the spiritual awakening through communism showed itself clearly in the last war. In contrast to the situation at the time of World War I, the number of illiterates was small. The Russian masses had acquired individuality, or at least were well on the way to acquiring it. The Russian is beginning to become a perceptive human being, and hence a soldier who is able to stand on

his own feet. The number of good noncommissioned officers was still not large in World War II and the Russian masses had not yet overcome their sluggishness. But the awakening of the Russian people cannot be far off. Whether this will work to the advantage or disadvantage of their soldierly qualities cannot yet be determined. For along with awareness flourish criticism and obstinacy. The arbitrary employment of masses resigned to their fate may become more difficult, and the basis of the typically Russian method of waging war may be lost. The force bringing about this change is communism, or more precisely, a spiritual awakening of the people directed by a rigidly centralized state. The Russian is fundamentally nonpolitical; at least that is true for the rural population, which supplies the majority of soldiers. He is not an active Communist, not a political zealot. But he is—and here one notes a decisive change—a conscious Russian who fights only in rare instances for political ideals, but always for his Fatherland.

In judging the basic qualities of the Russian it should be added that by nature he is brave, as he has well demonstrated in his history. In 1807 it was the Russian soldier who for the first time made a stand against Napoleon after his victorious march through Europe—a stand which may be called almost epic.

In line with this awakening, another determining factor has been introduced into the Red Army by the political commissar—unqualified obedience. Carried out to utter finality, it has made a raw mass of men a first-rate fighting machine. Systematic training, drill, disregard for one's own life, the natural inclination of the Russian soldier to uncompromising compliance and, not the least of all, the real disciplinary powers available to the commissar, are the foundations of this iron obedience. In this connection, it must be remembered that Russia is an autocratically ruled state—an absolute dictatorship demanding and compelling the complete subordination of the individual. That blind obedience of the masses, the mainspring of the Red Army, is the triumph of communism and the explanation of its military successes.

In addition to the simplicity which is revealed in his limited household needs and his primitive mode of living, the Russian soldier has close kinship with nature. It is no exaggeration to say that the Russian soldier is unaffected by season and terrain. This immunity gave him a decisive advantage over the Germans, especially in Russian territory where season, temperature, and terrain play a decisive role.

The problem of providing for the individual soldier in the Russian Army is of secondary importance, because the Russian soldier requires only very few provisions for his own use. The field kitchen, a sacred institution to other troops, is to the Russian soldier a pleasant

surprise when it is available, but can be dispensed with for days and weeks without undue hardship.

During the winter campaign of 1941, a Russian regiment was surrounded in the woods along the Volkhov and, because of German weakness, had to be starved out. After 1 week, reconnaissance patrols met with the same resistance as on the first day; after another week only a few prisoners were taken, the majority having fought their way through to their own troops in spite of close encirclement. According to the prisoners, the Russians subsisted during those weeks on a few pieces of frozen bread, leaves and pine needles which they chewed, and some cigarettes. It had never occurred to anyone to throw in the sponge because of hunger, and the cold (−30° F.) had not affected them.

The kinship with nature, which the Russians have retained to a greater degree than the other peoples of Europe, is also responsible for the ability of the Russian soldier to adapt himself to terrain features, and actually to merge with them. He is a master of camouflage, entrenchment, and defense construction. With great speed he disappears into the earth, digging in with unfailing instinct so as to utilize the terrain to make his fortifications very difficult to discover. When the Russian has dug himself into his native soil and has molded himself into the landscape, he is a doubly dangerous opponent.

The utmost caution is required when passing through unknown terrain. Even long and searching observation often does not reveal the excellently camouflaged Russian. Frequently, German reconnaissance patrols passed through the immediate vicinity of Russian positions or individual riflemen without noticing them, and were then taken under fire from behind. Caution must be doubled in wooded areas. In such areas the Russians often disappear without a trace, and must be driven out individually, Indian fashion. Here, sniping from trees was particularly favored by the Russians as a method of fighting.

The industrialization of the country, carried out in a comparatively short period of time, has made available to the Red Army a large number of industrial workers with full command of technical skills. The Russian has mastered all new weapons and fighting equipment, all the requirements of machine warfare, with amazing rapidity. Soldiers trained in technical subjects were carefully distributed through the ranks where they taught the necessary rudiments to their duller urban comrades, and to those who came from rural areas. The technical skill of the Russian was especially notable in the field of signal communications. The longer the war lasted, the better the Russians became at handling this type of equipment. Their communications improved steadily, and with noteworthy skill the Russians soon made themselves familiar also with German signal communications. Monitoring and tuning in, jamming and deception, all were arts which they understood very well. Whereas in World War I the telephone was still magic to the average Russian, in World War II he regarded the complicated radio as an amusing toy. In the field of signal communications, he also maintained his iron discipline, thereby propounding many a riddle for German signal intelligence.

In contrast to the good side of the Russian soldier there were bad military aspects of equal significance. To the Germans, it was one of the imponderables about each Russian unit whether the good or bad would predominate. There still remained an appreciable residue of dullness, inflexibility, and apathy which had not yet been overcome, and which probably will not be overcome in the near future.

The unpredictability of the mood of the Russian soldier and his pronounced herd instinct at times brought on sudden panic in individual units. As inexplicable as the fanatic resistance of some units, was the mystery of their mass flights, or sudden wholesale surrender. The reason may have been an imperceptible fluctuation in morale. Its effect could not be counteracted by any commissar.

His emotions drive the Russian into the herd, which gives him strength and courage. The individual fighter created by modern warfare is rare among the Russians. Most of the time a Russian who has to stand on his own feet does not know what to do. During the war, however, this serious weakness was compensated for by the large mass of men available.

A word about the craftiness of the Russian. He seldom employed large-scale ruses. The usual tricks, such as feigning the existence of troops by increased fire and other means, were just as common with the Russians as with all armies. They seldom carried out feint attacks. The Germans found, however, that they had to be on guard against dishonesty and attempts at deception by individual Russian soldiers and small units. One trick, a particular favorite, was to feign surrender, or come over to the enemy with raised hands, white flags, and all the rest. Anyone approaching in good faith would often be met by sudden surprise fire at close range. The Russian soldier, who can lie motionless for hours on end, often feigned death. An unguarded approach often cost a German his life.

Chapter 2

The Russian Command Echelons

The higher echelons of Russian command proved capable from the very beginning of the war and learned a great deal more during its course. They were flexible, full of initiative, and energetic. However, they were unable to inspire the mass of Russian soldiers. Most of the commanders had advanced in peacetime to high positions at a very early age, although there were some older men among them. All social levels were represented, from the common laborer to the university professor of Mongolian languages and cultures. Of course, merit in the Revolution played a part, but a good choice was made with respect to character, military understanding, and intelligence. Purely party generals apparently got positions carrying little more than prestige. The extraordinary industry with which the commanders went about their duties was characteristic. Every day, and far into the night, they sat together to discuss and to record in writing what they had seen and heard during the day.

During the various political purges an appreciable portion of this command strata disappeared. But it is a mistake to assume that a deterioration of the higher command levels resulted. Such great progress had been made in military education in Russia that even the higher commanders available at the beginning of the war were of a stature commensurate with their duties. In this connection it must be noted that a nation as young, energetic, and populous as Russia, was able to draw on an inexhaustible source of strength. In addition, this group of officers was held in high regard by the populace, was extolled in propaganda, and was very comfortably situated economically. Many things testified to the position which the military leaders of the Soviet Union enjoyed in the state and among the people: pictures in prewar illustrated Russian newspapers, the display in Red Army office buildings of artistically valuable portraits of senior officers and of paintings showing episodes in their military careers, and the exhibition on stairways and in government buildings of banners emblazoned with the pronouncements of high-ranking military officers.

The many developments in the sphere of strategy, which now and then gave rise to doubts about the ability of these leaders, require an examination of their background before they can be properly judged. The alleged failure during the Finnish winter campaign of 1939–40 is

well known, but nevertheless the conjecture cannot be dismissed that there was some bluffing involved. The timing of the operation was correct and would produce results as soon as the will of the immeasurably superior attacker desired them.

Neither is the success of the German surprise attack at the opening of the campaign against Russia in 1941 any proof to the contrary. Along the Central Front, and also in the north, it appeared as though the actual war did not begin until the Dnepr and the Luga had been reached. One of Timoshenko's strategic war games, as well as the course of events at the beginning of the Eastern Campaign, tend to substantiate this assumption, which is supported by the following incident.

In mid-July 1941 the German LIII Infantry Corps joined the defensive battle in the Dnepr-Berezina triangle (Map 2) against Timoshenko's thrust into the flank and rear of Second Panzer Group which was advancing on Smolensk. Soon thereafter, corps found out that in February 1941, in a house on the Bobruysk-Rogachev road, Timoshenko and his field commanders had held a conference which lasted several days. Upon exhaustive search of that house a map was found indicating that German armored units were assumed to be north of Rogachev, east of the Dnepr; a pincers operation was being launched against them from the regions of Zhlobin-Rogachev and Mogilev, with Bobruysk as the objective; one very strong group of forces was to advance to the northwest via Zhlobin-Rogachev, another of like strength to the southwest via Mogilev, to cut off the German armor; the two groups were to meet at Bobruysk; the intermediary daily objectives of the two groups were indicated by semicircles; a cavalry unit of three elements, committed on the west bank of the Berezina and striking northward from the Parichi area, was to cut the Slutsk-Bobruysk road and the Minsk-Bobruysk railroad, and complete the encirclement.

Since the German armored units had already defeated the northern enemy group near Orsha, there remained only the southern arm of the pincers. With a total of 20 divisions, Timoshenko carried through this part of the operation that apparently had been planned in February. He thus came in contact with LIII Infantry Corps which had in the meantime arrived in the Dnepr-Berezina triangle by way of Bobruysk. There developed a bitter 3-week defense action between the corps—comprising three divisions—and those Russian forces which had advanced across the Dnepr near Zhlobin and Rogachev. During the course of this battle the cavalry corps indicated on the map also appeared, and for a while actually reached its objectives. The LIII Infantry Corps was cut off from the rear for about a week.

Only customs and frontier guards were encountered on the Bug; very weak enemy forces appeared after a few days; finally, the big battle in the Dnepr-Berezina triangle: thus began the Eastern Campaign. Prisoner statements furnished the Germans a very clear pic-

ture of the preliminaries, concentrations, and groupings for the battle by the Russians. Again and again reports gave the impression that large-scale enemy movements did not get under way until after the opening of the campaign, and that they took place beyond the Dnepr. From the point of view of Russian grand strategy it was undoubtedly an expedient solution. Nevertheless, the German intelligence service believed that it had identified continuous troop movements to the Russo-German frontier, supposedly involving 130 divisions, as early as spring of 1940.

The events which led up to the battle of Uman on the Southern Front offer no damaging evidence against the ability of the Russian higher command, but show only the danger and the detrimental effect of injecting politics into current military operations.

Thus the Russian high command was, for the most part, competent. Whether Timoshenko's tenacity in carrying out his plan, as mentioned above, even though the northern part of the pincers operation was knocked out, should be regarded as inflexibility, or whether Timoshenko thought that there were possibilities for a great success just the same, must be left out of the discussion. During the subsequent course of the war, however, a flexibility in strategy was apparent in the Russian high command that in the field of tactics long remained absent in the performance of the intermediate and lower command echelons. An awareness of responsibility accompanied the willingness to accept responsibility, as is shown by the following example.

After the break-through by the German LIII Infantry Corps from the southwest to Bryansk at the beginning of October 1941, the opposing Russian Fiftieth Army, commanded by General Petrov, withdrew, badly shaken, to the wooded terrain northeast of Bryansk. The Bryansk pocket was the result. During the withdrawal the commander of the Fiftieth Army had been given command of Army Group Bryansk under which, in addition to the Fiftieth Army, were placed the Thirtieth and Thirty-third Armies. The diary of Major Shabalin, a State Security (GPU) officer attached to Fiftieth Army headquarters who was killed in the Bryansk pocket, contained the following on the subject:

> I [Shabalin] congratulated General Petrov at breakfast upon his appointment as commander of Army Group Bryansk. General Petrov answered only: "So now they are going to shoot me too." I replied: "How can you talk of shooting? Your appointment as commander of the Group is an indication of confidence in your ability to get things organized again." General Petrov: "How can I get the situation back under control when I don't know where the Thirtieth and Thirty-third Armies are and what condition they are in?"

A few days later General Petrov was killed at the side of Major Shabalin, in a night attempt to break out of the Bryansk pocket.

Another example was that of Marshal Kulik who, with a serious leg injury, supported himself on a cane and led 10,000 men, whom he had reassembled after the Minsk pocket, through the swamps near Bobruysk, and gave the German troops serious difficulties. The higher Red Army commanders did not spare themselves.

The way operations were launched and carried out revealed the influence of German methods on the Soviet high command. Operations against flank and rear, large-scale envelopments, and encirclements all played a part. Other maneuvers employed were mobile defense and, finally, break-through and break-out.

Timoshenko's plan for a double envelopment and isolation of the German large armored units which had advanced across the Dnepr undoubtedly was on the grand scale. This operation was carried out energetically and efficiently. The strategic concentration, assembly, and commitment of units participating in the attack were irreproachable.

The great thrust via Yefremov at the beginning of November 1941, in which the Russians aimed at the rear of the German armored units standing in front of Tula, and which later led to the battle of annihilation southeast of Plavskoye, was likewise well planned. From a strategic and tactical point of view it had a chance of success. The weakest point of the German armored thrust had been recognized and correctly exploited.

The Russian high commands had an eye for strategically and tactically weak points of the enemy. The battle of Moscow in 1941–42 and its consequences are a good example of this as are, on a smaller scale the operations in March 1944 on the Kandalaksha front in northern Finland against XXXVI Mountain Corps. The Red Army high command can, of course, claim more and even greater successes, such as the various major offensives from 1943 to 1945.

However, the resources of their country and the large number of troop units that were available gave the Soviet command an advantage over the Germans. Equipment, training, and physical and spiritual character of their armed forces all corresponded to the conditions in the East. For this reason the Germans had to contend with a great number of difficulties which simply did not exist for the Russian high command. In addition, the low valuation placed on human life freed the Soviet high command from moral inhibitions. Whether, for example, several divisions were lost in an encirclement, or whether a reindeer division on the Murmansk front perished in a snowstorm, was of no particular importance. Not until later did the long duration of the war and the extensive losses force the Red high command to greater economy of manpower.

The flexibility demonstrated by the higher commands (army and army group) was not evident at lower levels. The lower command

echelons (echelons below division level) of the Russian Army, and for the most part also the intermediate echelons (generally division level), remained for a long period inflexible and indecisive, avoiding all personal responsibility. The rigid pattern of training and a too strict discipline so narrowly confined the lower command within a framework of existing regulations that the result was lethargy. Spirited application to a task, born of the decision of an individual, was a rarity. Russian elements that had broken through German lines could remain for days behind the front without recognizing their favorable position and taking advantage of it. The Russian small unit commander's fear of doing something wrong and being called to account for it was greater than the urge to take advantage of a situation.

The commanders of Russian combined arms units were often well trained along tactical lines, but to some extent they had not grasped the essence of tactical doctrines and therefore often acted according to set patterns, not according to circumstances. Also, there was the pronounced spirit of blind obedience which had perhaps carried over from their regimented civilian life into the military field. Thus, for example, toward the end of September 1941 in the area southwest of Bryansk, the same sector was attacked by various Russian battalions every day for 7 days running without any apparent reason and without success, but with severe losses. Finally, a captured battalion commander supplied the explanation. In looking through some old files, their new regimental commander had found a top-level order to the effect that continuous attacks were to be made along the entire front in order to ease the pressure on Leningrad. Since he had received a negative answer to his inquiry as to whether these attacks had already been made, he had ordered this sector attacked every day. In the meantime, however, 2 months had passed, and the pressure on Leningrad had long since been relieved.

This lethargy and reluctance to assume responsibility was a serious drawback to the Red Army, completely neutralizing a great many good points of the Russian soldier. Later on, the Soviet commanders learned a great deal along this line and became more flexible. The tactical employment of the 6th Rifle Division in the battle of annihilation southeast of Plavskoye may be termend perfect: advance, withdrawal in trucks in dangerous situations, another forward thrust, and then attack.

So far as care of the troops and internal administration were concerned, Russian unit commanders faced the same problems that confronted officers of other armies. There was great interest in hygienic measures. But also other matters, such as decorations, promotions, results of the war loan, and similar matters, kept the lower commanders very busy.

Chapter 3

The Commissar

The influence of the Communist party and of its representatives in the Army—the commissars—was tremendous. The commissar was probably the most controversial man in the Russian Army. Even in the Soviet Union opinions varied concerning his usefulness, his position, and his duties. He was the driving force of the Army, ruling with cunning and cold-bloodedness.

By means of a close-meshed network of especially chosen personalities, the commissars held the entire army machine under their control and in a tight grip. The commissars were to a preponderant degree real political fanatics. They came mostly from the working class, were almost without exception city people, brave, intelligent, and unscrupulous. But they also took care of the troops. Even though, during the course of the war, their intervention in the military conduct of the war was reduced thanks to Stalin's military instinct, their influence was not lessened.

However, it is not true that the Russian soldier fought well only because of fear of the commissars. A soldier who is motivated solely by fear can never have the qualities that the Russian soldier of this war displayed. The motive of fear may often have been the final resort in difficult situations, but basically the Russian has no less national—as distinguished from political—patriotism than the soldier of the western armies, and with it comes the same source of strength. Unceasing propaganda has burned nationalism into his soul. And however impervious he may be to foreign propaganda, he nevertheless has been unable to escape the engulfing waves of his own.

Among the troops themselves the relationship of the soldier to the commissar apparently was endurable in spite of the commissar's uncompromising strictness and severity. The higher headquarters, on the other hand, appear to have regarded him with mistrust. Testimony to that conclusion is found not only in the episode mentioned below, but also in many remarks of General Petrov, the commander of the Fiftieth Army, to Commissar Shabalin, which the latter recorded verbatim in his diary. General Petrov once ironically asked Shabalin, who was sitting next to him in the tank: "Well, how many have you shot today?" Shabalin added the note: "Such sarcasm." The commissar was thus often considered an alien element by headquarters.

The prohibition of vodka in the Russian Army, which had been in effect until then, was rescinded in August 1941. A division commissar recommended that the prohibition be restored immediately and based his recommendation on an occurrence which took place at his division headquarters. The first liquor to arrive was not distributed to the troops by division headquarters, but used by the headquarters staff itself. The result was general drunkenness among the staff. The officers allegedly went out into the village street and killed geese with their pistols. When there were no more geese, an officer of division headquarters pounded the commissar on the shoulder and said, "Well, all the geese have been shot dead. Now it's your turn."

In the fighting east of Roslavl in August 1941, a Russian tank company that had been sent into action suddenly stopped on the battlefield. The leader of the tank company had received an order before going into action to refuel at a fuel depot somewhat to the rear of his bivouac area. He did not, however, want to take the trouble to go back as he thought that it would be possible to refuel farther forward at the divisional command post nearer the front. But there was no opportunity to refuel at that point. The tank company just reached the battlefield and then ground to a halt because of lack of fuel. Thereupon, the company commissar drew his pistol and shot the commanding officer on the spot.

The attitude of the common man toward the commissar was conditioned not only by fear of his power, but also by his personal exemplification of the soldier and fighter. His concern for the welfare of the troops also determined to a large extent his relationship with the men. The commissars always made much of the well-being of the troops. Commissar Shabalin, for instance, reported to higher authority the insufferable conditions on the Moscow-Orel-Bryansk railroad. While reconnoitering for new division headquarters, he immediately sent a division commissar, whom he had discovered in the rear, back to the front with the observation: "You belong with your troops; go and take care of them." There were innumerable recommendations for the improvement of conditions in the Army hospitals.

The example set by the commissars is largely responsible for the tenacious resistance of the Russian soldier, even in hopeless situations. It is not wholly true that the German commissar order, directing that upon capture commissars be turned over to the SD (Security Service) for "special treatment," that is execution, was solely responsible for inciting the commissars to bitter last-ditch resistance; the impetus much rather was fanaticism together with soldierly qualities, and probably also the feeling of responsibility for the victory of the Soviet Union. The previously mentioned occupation of the

bunkers on the Bug and the continued resistance in the citadel of Brest Litvosk can be traced to the influence of the commissars.

Then, too, in innumerable other cases dogged perseverance even under hopeless conditions was to be credited to the soldierly conduct of the commissars. For instance, in September 1941, long after the castle of Posyolok Taytsy (south of Leningrad) had been taken, and strong German troop units had been drawn up in the castle park, German tanks passing near the park wall with open hatches drew single rounds of rifle fire from close range. The shots were aimed at the unprotected tank commanders who were looking out of the turrets. Not until three Germans had been killed by bullets through the head did the passing tank unit realize that the shots were coming from a narrow trench close under the park wall 10 yards away. The tanks then returned the fire, whereupon all 13 occupants of the trench met death. They were the officers of a Russian regimental headquarters, grouped about their commissar who fell with his rifle cocked and aimed.

After the German divisions broke out of the Luga bridgeheads in August 1941, the commander of a task force inspected several Russian tanks which had been knocked out 2 hours earlier near a church. A large number of men were looking on. Suddenly, the turret of one of the knocked-out tanks began to revolve and fire. The tank had to be blown up. It turned out that among the crew, which had been assumed dead, there was a commissar who had merely been unconscious. When he revived and saw the many German soldiers around him, he opened fire.

When in April 1942 the Germans took a strong position along the Osuga (southwest of Rzhev), they continued to receive rifle fire from one lone barricaded bunker. All demands for surrender were in vain. When an attempt was made to shoot through the embrasure with a rifle, the Red soldier grabbed it and fired the last three shots. Two of the bullets wounded German soldiers. The commissar, who was defending the bunker alone in the midst of his dead comrades, then shot himself with the third.

It might appear that much of the fighting spirit and concern for the welfare of the troops which the commissars displayed should have been the responsibility of the commanding officers and not of the commissars. However, it was always a question of situations in which something had to be done. The commanding officers generally did little, while the commissars acted. The passive character of the Russian officers was responsible for the fact that it was not the commander but the commissar who discovered the road to action. Therefore, the commissar was really a necessary part in the structure of the Red Army. He was a sort of front-line conscience.

It was difficult for the Russians themselves to properly judge this matter, and much more so for anyone distantly removed. Rejecting an institution which had its good points under the prevailing conditions would have been a mistake.

The commissars found special support among the women who served within the framework of the Soviet Army. Russian women served in all-female units with the so-called partisan bands, individually as gunners in the artillery, as spies dropped by parachute, as medical corps aides with the fighting troops, and in the rear in the auxiliary services. They were political fanatics, filled with hate for every opponent, cruel, and incorruptible. The women were enthusiastic Communists—and dangerous.

It was also not unusual for women to fight in the front lines. Thus, uniformed women took part in the final breakout struggle at Sevastopol in 1942; medical corps women in 1941 defended the last positions in front of Leningrad with pistols and hand grenades until they fell in the battle. In the fighting along the middle Donets in February 1943, a Russian tank was apparently rendered immobile by a direct hit. When German tanks approached, it suddenly reopened fire and attempted to break out. A second direct hit again brought it to a standstill, but in spite of its hopeless position it defended itself while a tank-killer team advanced on it. Finally it burst into flame from a demolition charge and only then did the turret hatch open. A woman in tanker uniform climbed out. She was the wife and cofighter of a tank company commander who, killed by the first hit, lay beside her in the turret. So far as Red soldiers were concerned, women in uniform were superiors or comrades to whom respect was paid.

The four elements which determine the nature of Russian warfare—the higher command, the troops, the commissar, and the Russian terrain—fitted together in such a way that their combination was responsible for good performance and great successes. The weakest elements were the intermediate and lower leaders. Their shortcomings, however, were made up for in part by appropriate action of the higher command and by the good will, the discipline, the undemanding nature, and the self-sacrificing devotion to duty of the enlisted men under the influence of energetic commissars who were filled with a belief in the essential necessity of victory. The Russian soldier thereby became an instrument which provided his leaders with the sort of fighter needed for the operations.

Chapter 4

The Combat Arms

1. Infantry

The picture of the Russian soldier presented up to this point applies primarily to the infantry. This branch supplied the bulk of the fighting men in active combat, and most clearly exemplified the peculiar characteristics of the Russian. The Red Army infantry was for a long period of time the mainstay of the Russian fighting machine, and in the Arctic this was true for the entire war period. As is apparent from the previously described characteristics of the Russian soldier, the Soviet infantry was willing, undemanding, suitably trained and equipped, and, above all, brave and endowed with a self-sacrificing devotion to duty. The communist philosophy appeared to have become firmly rooted among the great mass of the younger people and to have made them loyal soldiers, differing much in their perseverance and performance from those of World War I. Subject to rapidly changing moods, the Russian infantryman was jovial one moment, cruel the next.

The Russian infantryman was a member of the herd, preferring to fight in concert with others rather than to be left to his own devices. In the attack, this characteristic was evidenced in the massed lines, sometimes almost packs; in the defense it was shown by the stubbornly resisting bunker complements. Here, there was no individual action for one's personal advantage. The soldiers aided each other and even displayed an interest in their comrades' family affairs.

As has already been pointed out the Russian soldier was virtually immune to seasonal and terrain difficulties. Further, he was almost complete master of the terrain. There appeared to be no terrain obstacles for the infantryman. He was as much at home in dense forest as in swamp or trackless steppe. Difficult terrain features stopped him only for a limited time. Even the broad Russian streams were crossed quickly with the help of the most primitive expedients. The German could never assume that the Russian would be held back by terrain normally considered impassable. It was in just such places that his appearance, and frequently his attack, had to be expected. The Red infantryman could, if he chose, completely overcome terrain obstacles in a very short time. Miles of corduroy road were laid through marshy terrain in a few days; paths were tramped through

forest covered with deep snow. Ten men abreast, with arms interlocked, and in ranks 100 deep, prepared these lanes in 15-minute reliefs of 1,000 men each. Teams of innumerable infantrymen moved guns and heavy weapons wherever they were needed. During the winter, snow caves which could be heated were constructed to furnish night shelter for men and horses. The Russian matériel was useful in this respect: motorization reduced to an absolute minimum; the lightest vehicles; tough horses that required little care; suitable uniforms; and, finally, again the human mass which moved all loads and performed all required tasks like a machine.

A singular kinship to nature makes the Russian infantryman an ideal fighter in forests, barren country, and swamps. In the Arctic, small units of several men stayed for weeks in the desolate area in the German rear, accompanied at times by female radio operators who were treated with particular respect.

Wounds were endured patiently and without complaint. Frostbite was a punishable offense because it was avoidable. Recovery, even from serious injuries, was rapid. Many an injury that would have been fatal to a Central European was endured and overcome.

The best weapon of the Russian infantryman was the machine pistol. It was easily handled, equal to Russian winter conditions, and one which the Germans also regarded highly. This weapon was slung around the neck and carried in front on the chest, ready for immediate action. The mortar also proved highly valuable as the ideal weapon for terrain conditions where artillery support was impossible. At the beginning of the Eastern Campaign, Russian infantry far surpassed the German in mortar equipment and its use.

The same was true for the Russian antitank gun, which at the beginning of the campaign considerably surpassed the antitank gun of the German infantry divisions in efficiency, and therefore was readily put to use whenever captured. The antitank gun was an auxiliary weapon from which the Russian soldier never separated. Wherever the Russian infantryman was, antitank defense could be expected by his enemy. At times it appeared to the Germans that each Russian infantryman had an antitank gun or antitank rifle, just as infantrymen of other armies had ordinary rifles. The Russian moved his antitank defense everywhere with great skill. It was to be found even where no German tank attacks might be expected. Emplacements were set up within a few minutes. If the small gun, always excellently camouflaged, was not needed for antitank defense, its flat trajectory and great accuracy were put to good use in infantry combat. The Germans had a rule to cope with this: Engage Russian infantry immediately following their appearance, for shortly thereafter not only

the soldier but also his antitank defense will have disappeared into the ground, and every countermeasure will be twice as costly.

In World War II the Russian infantryman had a noteworthy negative characteristic: He was not inquisitive. His reconnaissance often was extremely poor. Combat patrols were for him the means of gathering information about the enemy only when he thought it necessary. Although the Russian proved himself an excellent scout, he made too little use of his abilities in this field. The higher Russian command was always well informed on the German situation by means of radio monitoring, interrogation of prisoners, captured documents, and other means. But the intermediate and lower commanders apparently were only slightly interested in their opponents. Here again the cause lay in the lack of self-reliance and in the individual Russian infantryman's inability to assemble into a useful report the observations made while on patrol.

The clothing and equipment of the Russian infantryman suited his summer as well as winter requirements. The Germans were amazed at how well the Siberian infantry was clothed in the winter of 1941–42. As might be expected, the fighters in the Arctic were likewise suitably clothed. The Russian infantryman was inferior to the German and to the Finn only in skiing. Of course, attempts were made to correct this deficiency through intensified training, but all efforts were doomed to failure since there was never more than one pair of skiis available for several men.

Equipment carried by all Germans was often discarded by the Russian infantryman as nonessential. Gas masks were commonly stored in division depots; steel helmets were rarely worn in the arctic wilderness.

II. Artillery

The efficiency of the Russian artillery varied greatly during the various stages of the war. In the beginning it was unable to achieve an effective concentration of fire, and furthermore was unenthusiastic about firing on targets in the depth of the battle position even when there was excellent observation. The Rogachev water tower, for example, and the railroad control towers as well as the high railroad embankment at Zhlobin, all of which were in Russian hands during the battle in the Dnepr-Berezina triangle, commanded a view over the entire area for many miles; nevertheless, they were not used for directing fire on the very important targets behind the German lines. On the Kandalaksha front, continuous German supply transport operations at the Karhu railroad station took place within sight of Russian observation posts. These operations were never taken under fire by Russian artillery. On the other hand, the Russian artillery liked

to distribute its fire over the front lines, and occasionally shelled a road intersection located not too far from the front.

During the course of the war the artillery also developed to a high degree the use of mass as a particularly characteristic procedure. Infantry attacks without artillery preparation were rare. Short preparatory concentrations lasting only a few minutes, frequently employed by the Germans to preserve the elements of surprise, seemed insufficient to the Russians. Thus, counting on the destructive effect of massed fire, they consciously accepted the fact that the Germans would recognize their intentions of attacking. Russian artillery fire often had no primary target, but covered the entire area with the same intensity. The Russian artillery was most vulnerable to counterbattery fire. It ceased firing or changed position after only a few rounds from the German guns. The rigidity of the fire plan, and a certain immobility of the Soviet artillery—at least during the first years of the war—was pronounced. Only in rare cases was the artillery successful in promptly following the infantry. Most of the time the artillery was unable to follow up; it remained stuck in the old positions, leaving the infantry without fire support. This practice frequently took the momentum out of the Russian attacks.

Attack tactics of Russian artillery improved constantly during the war. Eventually, however, their tactics resolved into an ever-repeated, set scheme. Heavy preparatory fire, laid down broad and deep and lasting from one to two hours, was the initial phase; it rapidly mounted to murderous intensity. Once an attack was about to get under way, the Russians would suddenly lift their fire from very narrow lanes (about 80 to 100 yards wide), along which the infantry was to advance. At all other points the fire continued with undiminished fury. Only the most careful German observation allowed recognition of those lanes. This method gave the impression that artillery preparation was still continuing in full force, though in reality the infantry attack had already begun. Here again, one notes the same concept: human lives meant nothing at all. If defensive fire forced the Russian infantry out of their narrow lanes, or if their own artillery was unable to maintain the lanes accurately—*Nichevo!*—those were operating expenses.

However, despite many shortcomings, the Russian artillery was a very good and extremely dangerous arm. Its fire was effective, rapid, and accurate. Particularly during the large-scale attacks in the summer of 1944 it became apparent that the Russians had learned well how to mass and employ large artillery units. Establishment of a definite point of main effort and the use of superior masses of artillery crushed the thin lines of German opposition at many places at the Eastern Front before the actual attack had begun. This successful pro-

cedure of establishing definite points of main effort will be used by the Russians in the future whenever they have the masses of artillery and ammunition required.

III. Armored Forces

The heart of the Russian armored force was the well-known T34 tank. Because of its wide tracks, its powerful engine, and its low silhouette, the performance of the T34 in Russian terrain was frequently superior to that of the Germany tanks, particularly with respect to cross-country mobility. To the surprise of all the German experts, the T34 easily negotiated terrain theoretically secure against mechanized attack. The caliber of its guns was too small, however, and forced the Russians to produce several new types of tanks (KV1 and Stalin) which, like the German models, became successively heavier. Despite all improvements the new tanks remained on the whole inferior to the T34. The Russians recognized this fact, and continued to mass produce the T34 until the end of the war.

Not until late did the Russians decide to launch concerted attacks by large tank forces. During the first years of the war, Russian tanks generally were used for local infantry support. Soviet tank attacks as such took place only after a sufficient number of the vehicles had become available. Here, too, the Russians adhered to their usual habit of employing great masses of men and machines.

Tank attacks generally were not conducted at a fast enough pace. Frequently they were not well enough adapted to the nature of the terrain. Those facts the Germans noted time and again through the entire war.

The training of the individual tank driver was inadequate; the training period apparently was too short, and losses in experienced drivers were too high. The Russian avoided driving his tank through hollows or along reverse slopes, preferring to choose a route along the crests which would give fewer driving difficulties. This practice remained unchanged even in the face of unusually high tank losses. Thus the Germans were in most cases able to bring the Russian tanks under fire at long range, and to inflict losses even before the battle had begun. Slow and uncertain driving and numerous firing halts made the Russian tanks good targets. Premature firing on the Russian tanks, though wrong in principle, was always the German solution in those instances. If the German defense was ready and adequate, the swarms of Russian tanks began to thin out very quickly in most cases. This fault in Russian tank tactics can be corrected only by peacetime training, but it can hardly be totally eliminated.

On the whole, the Russian armored force was not as good as the Russian artillery. Limited flexibility, and the inability of the sub-

ordinate commanders to exploit favorable situations rapidly and adroitly, were evident and frequently prevented the Russians from achieving successes almost within their grasp. Toward the end of the war, however, the inadequate facilities of the Germans were no longer able to stand up against the masses of equipment of the Reds.

IV. Horse Cavalry

In the campaign the Russian cavalry, despite many changes in tactics and equipment, achieved a significance reminiscent of old times. In the German Army, all cavalry except one division had been replaced by panzer units. The Russians followed another course. The German LIII Infantry Corps quite often encountered Russian cavalry divisions, and once a cavalry corps comprising three cavalry elements—always in situations in which cavalry was a suitable arm for the purpose.

In the battle of the Dnepr-Berezina triangle, a cavalry corps comprising three elements appeared west of the Berezina near Bobruysk, out of the Pripyat Marshes, in the rear of the German corps which was engaged in hard fighting. This cavalry force cut the Slutsk-Bobruysk highway and the Minsk-Bobruysk railroad, and thereby isolated the corps for a week from its supply and contact with the rear. Bobruysk itself, together with the bridges there, was seriously threatened. Only by prompt emergency measures were the Germans able to ease the pressure. During that period the corps ammunition supply dropped to twenty rounds per 105-mm. gun, and that at a time when Timoshenko's major offensive had reached its peak. Forces other than cavalry would have been unable to conduct such a raid.

In the advance out of the Bryansk pocket northward past Plavskoye to the upper Don in October–November 1941, the 112th Infantry Division of LIII Infantry Corps was met by a Russian cavalry division just as it reached the Orel-Tula road. There ensued some very unpleasant delays. The cavalry division accomplished its mission by occupying every town along the route of advance, withdrawing from each one as soon as the division advanced to attack. Thus the 112th Division was kept occupied by constant small-scale warfare.

During the battle of annihilation southeast of Plavskoye, cavalry divisions appeared on both wings of the Russian attack front. The cavalry division just mentioned was on the northern wing. The Russian command had diverted it to the battlefield as soon as the 112th Infantry Division turned in that direction. The cavalry division, with its greater speed, reached the Plavskoye area ahead of the 112th Division and blocked its advance until a Russian rifle division arrived at the front. The cavalry division mentioned earlier was on the southern wing. That division was to reach the Orel-Tula highway in a forced march so as to cut it near Chern—under prevailing circumstances, a rewarding and practicable task for a cavalry division. The corps' further advance to the upper Don was constantly accompanied and watched by a cavalry division 5 to 10 miles off its right flank. The cavalry division would have been able to intervene at once, in any manner whatsoever, if the Russian higher command had had any occasion for ordering it to do so.

The above examples are drawn from situations in which the missions in question could have been executed only by cavalry. The German armored vehicles were out of action in October during the muddy period. Only cavalry could operate through the Pripyat Marshes.

Under conditions as characterized in Central Russia by great forest and swamp areas, muddy periods, and deep snow, cavalry is a usable arm. Where the German motor failed, the Russian horse's legs continued to move. The tactical employment of the cavalry forces was, however, not always suited to the situation and sometimes was even awkward. Leadership and training in the Russian cavalry were not up to the World War I standard.

Chapter 5

Russian Battle Techniques

Just as the Russian soldier had his own peculiarities in his internal make-up, so he had them in his combat methods. The most common Russian form of combat was the use of mass. Human mass and mass of matériel were generally used unintelligently and without variation, but under the conditions, they were always effective. Both had to be available before they could be used so lavishly and were therefore dependent upon limitless Russian supplies. The Russian disdain for life—always present, but infinitely heightened by communism—favored this practice. A Russian attack which had been twice repulsed with unheard-of losses would be repeated a third and a fourth time at the same place and in the same fashion. Unimpressed by previous failures and losses, new waves always came on. An unusual inflexibility of mind and unimaginative obstinacy lay in this use of masses, and was dearly paid for. It is not possible to estimate Russian casualties in World War II with any degree of accuracy; there will always be a potential error of many hundred thousands. This inflexible method of warfare, with the objective of accomplishing everything through the use of human masses, is the most inhuman and costly possible.

Characteristic of the disdain for human life was the complete elimination of military funeral rites. There was no such thing as a funeral ceremony for the ordinary citizen in communist Russia. It ran counter to the antireligious philosophy and the mass sacrifice of human beings. There were occasional burial mounds in which a thick peg, painted red, had been driven into the ground at the head end, inscribed with the heroic deeds of some commissar killed in action. The bulk of the dead millions were unceremoniously plowed under. Thus, all outward indications of the number of dead were obliterated.

Not until 1944 did the Russians start using their men more sparingly. Only after there were no new millions available did there appear in orders the first reference to consideration in the use of men and admonitions to avoid losses. Nevertheless, a thinning of the attack waves was virtually unknown to the Russians until almost the last days of the war. The herd instinct and lack of self-reliance on the part of the subordinate commanders time and again misled them into the concentrated employment of troops. It was not particularly difficult to crush the attack of the human mass so long as the opposition possessed a mass of material in trained hands.

In the winter of 1941, the Russians cleared a German mine field south of Leningrad by chasing over it tightly closed columns of unarmed Russian soldiers shoulder to shoulder. Within a few minutes, they became victims of the mines and defensive fire.

The inflexibility of Russian methods of warfare was evidenced repeatedly. Only the top Russian command during the last years of the war was an exception. This inflexibility manifested itself as high as army level; in divisions, regiments, and companies it was unquestionably the retarding factor in the way the Russians fought. A division boundary was a sacred wall, and a neighbor's interest halted at his side of that wall. The senseless repetition of attacks, the rigidity of artillery fire, the plotting of lanes of attack and movement without regard to terrain, were all additional symptoms of inflexibility. The leaders displayed a certain flexibility in their frequent shifting of units in the front lines. These units disappeared unnoticed overnight and reappeared several days later in another sector of the front. It was, however, no feat to relieve and exchange troops so long as one had the reserves that the Russians had; on the other hand, it was all the more difficult if one had none, as was the case with the Germans. The Russians have this method to thank for the fact that only a few of their units became thoroughly depleted during the course of prolonged battles; on the German side such a depletion became inevitable over the years of continuous service of units. None of the Soviet units that were thus shifted from sector to sector ever disappeared. It could be safely assumed that the unit withdrawn would be recommitted within the same army sector. The organization of an army and the assignment of divisions to it also remained fixed. It seldom happened that divisions were interchanged between the armies.

Though generally no master of improvisation, the Russian command nevertheless knew how to bring battered infantry units up to strength and how to constitute new units as replacements for destroyed ones. This procedure frequently was accomplished with startling speed, but it soon turned out to be a game played with human lives. For example, the inhabitants of a threatened city, or perhaps the entire male population of areas which the Germans had recently evacuated, were gathered up quickly by means of excellent organization. Regardless of age, nationality, deferred status, or fitness, they were used to fill out these units. With no training at all, or at most only a few days of it, and often without weapons and uniforms, these "soldiers" were thrown into battle. They were supposed to learn in combat all that was necessary, and to acquire their weapons from their dead comrades. The Russians themselves were aware of the fact that these men were no soldiers, but they filled gaps and supplemented the sinking numbers of the human mass. During the fighting in a bridgehead

southeast of Krememchug in September 1943, the Russians at nighttime used to drive ahead of their armed soldiers large numbers of civilians whom they had gathered up, so that the German infantry might expend its scant supply of ammunition.

The Russians repeated the same tactics again and again: employment of masses, and narrow division sectors held by large complements replenished time after time. Therefore also the mass attacks. In the twinkling of an eye the terrain in front of the German line teemed with Russian soldiers. They seemed to grow out of the earth, and nothing would stop their advance for a while. Gaps closed automatically, and the mass surged on until the supply of men was used up and the wave, substantially thinned, receded again. The Germans often witnessed this typical picture of a Russian attack. It is impressive and astounding, on the other hand, how frequently the mass failed to recede, but rolled on and on, nothing able to stop it. Repulsing such an attack certainly depended on the strength of the forces and means for defense; primarily, however, it was a question of nerves. Only seasoned soldiers mastered the fear which instinctively gripped everyone upon the onslaught of such masses. Only the true soldier, the experienced individual fighter, could in the long run stand up under the strain; only a multitude of them could stop those masses.

Another specifically Russian battle technique was infiltration. It was a practice which especially suited the Russian, and of which he was a master. Despite closest observation of the avenues of approach, the Russian was suddenly there; no one knew where he had come from, nor how long he had already been there. Wherever the terrain was considered impassable, but was still kept under close observation to be doubly safe—just there the Russian infiltrated. He was suddenly there in substantial numbers and had already vanished into the earth. Nobody had seen a thing. Because of the drawn-out German defense fronts, it was no particular art to steal between the widely separated strong points, but it was always a surprise when, despite all watchfulness during the night, the Germans found the next morning that strong Russian units fully equipped with weapons and ammunition had assembled and dug in far behind the front. These operations were executed with unbelievable skill, completely noiseless and almost always without a struggle. It was a very profitable technique which succeeded in hundreds of cases and gained the Russians great advantages. There was only one method of countering it: extreme watchfulness, and heavily occupied, deep positions, secured throughout at all times.

Of the same nature was the Russian's constant effort to establish bridgeheads (or advance covering positions, which are here included in the same category). These bridgeheads often served to harass the German and to sap his strength, and often were used as a base for

[illegible]ian attacks. They were established by infiltration or by attack, and were a dangerous Russian tactic. It always proved wrong and absolutely fatal to do nothing about such bridgeheads or to postpone their elimination, no matter what the reasoning. It was certain that [illegible]an bridgeheads which had existed only 24 hours would during that time have grown into a serious menace. Though only one Russian company might have occupied the newly formed bridgehead in the evening, by the next morning it was sure to have turned into an almost invincible fortress held by at least a regiment and bristling with heavy weapons. No matter how heavy and accurate the German fire, the flow of men into the bridgehead continued. Regardless of all countermeasures the bridgehead continued to swell until it ran over. Only by using very strong forces and planned attack could it still be contained or eliminated, provided one was lucky and not afraid of heavy losses. Therefore, the warning against these bridgeheads can never be stressed sufficiently. There was only one way of fighting them, and that had to be made a rule: Every Russian bridgehead in the process of being formed, and every advanced position, no matter how small, must be attacked *immediately*, while it is still undeveloped, and eliminated. If the Germans waited even a few hours, they were in most cases too late, and on the next day success was more remote than ever. Even if there were but one platoon of infantry and one tank available, they had to be committed at once; the Russian was not yet dug in, he was still visible and within reach, he still had no organized defensive fire and no heavy weapons in the new position. A little later he would have all of these. Every delay brought disaster; only an immediate counterattack led to success.

The Russian's kinship with nature expressed itself also in his preference for night operations. Shifts from one position to another, and concentrations, executed rapidly and silently in darkness, were more frequent than night attacks, which themselves were no rarity. However, the Russian generally avoided large-scale night attacks, since it appeared to him that the individual soldiers and subordinate commanders lacked the necessary self-reliance. A major offensive operation was conducted at night only when a victory definitely expected by the highest command had not been achieved in the course of daylight attacks. Such large-scale night attacks were mostly acts of desperation that failed to produce success. On the other hand, night attacks with a limited objective were a method which the Russians liked to employ in order to gain advantages for the next day, or to recapture lost ground. These night attacks were mostly infantry battles only, without use of artillery. The Germans found that it paid to be prepared for a Russian attempt to regain in the night a position that had been lost during the day.

The Russian's excellent utilization of railroads should be noted, even though it does not actually fall into the category of combat. The Russians accomplished strategic concentrations or shifts of large units, one or more armies, in an unbelievably short time with the help of the railroads. The imperfect rail net of European Russia did not often present opportunity for such measures, but whenever a chance offered itself, it was thoroughly utilized. Every expedient was used even though it bore the unmistakable mark of improvisation: a continuous succession of trains without any technical railroad safety measures; trains traveling one within sight of the next, or on two tracks in the same direction; reckless overcrowding and overloading of trains. The number of trains necessary per unit was less here than for any other army. The Russian neither had nor needed baggage or accessories, clerk's bulky lockers, surplus vehicles, or large food supplies. He could be packed into railroad cars like a sardine in a can. The wider gauge and the corresponding greater width of the Russian railroad car was significant in this respect. In any event, by using this type of railroad transport the Russians succeeded in surprising the German command, since such rapidity in large-scale troop movements by railroad contradicted all experience.

Fighting the Russian on his own ground necessitated orientation in a new type of combat. Fighting had to be primitive and unscrupulous, but rapid and flexible. The German could never afford to hesitate even in the face of the most surprising occurrences and unexpected turns of events. Russian reactions to the tactical rules of warfare, and to tricks of the trade such as envelopment, flanking threat, feint, surprise, etc., could never be determined beforehand. One time the Russian would react according to the rules and give up sooner than anticipated; on another occasion all efforts were to no avail, and neither encirclement nor flank attack fazed him. The struggle with the Russians was thereby placed on an entirely new basis; predictive calculation was useless, and every action was full of suspense and surprise. At times, positions which were tactically decisive according to normal concepts would be evacuated by the Russians without delay. At other times, individual terrain features of no evident importance would be held even in the face of serious losses. In those instances the Russian often relied only on his intuition, which he substituted for his practical schooling. It must be conceded that this tactical instinct often stood the Russian in better stead than the theories of many academies could have done. The soundness of many an action which at first seemed surprising, often had to be recognized at a later time.

There was just one tactical misconception which the Russians could not relinquish despite all losses: the belief that an elevation was in every case the only terrain feature of value. They tried for every

elevation, fought for it with perseverance and strong forces, without estimating whether it actually dominated the terrain or whether the situation demanded its possession. If the elevation was really important, the Germans thought it well to occupy it before the Russians; otherwise, it was to be expected that the elevation could be taken only with heavy losses. In more cases than had earlier been assumed, however, the possession of level ground was sufficient; the value of the elevation was frequently overestimated.

Thus the Russian soldier voided a number of tactical principles. Still others were altered because of the nature of the country itself, a factor discussed in the following chapter.

Chapter 6

Russia as a Theater of Operations

In the characteristics of Russian terrain, the Germany Army was faced with an inordinate number of new experiences which made necessary the formulation of new doctrines of combat. The Germans had to become thoroughly familiar with Russian land and climate—new enemy weapons to them—in order to deal with them, or at least, to neutralize their restrictive effects. Their qualities altered tactical procedures formerly in common use, and forced the adoption of measures necessary for military operations in that particular area and climate.

In many instances, climate and soil conditions in the U. S. S. R. would for extended periods of time void all rules governing military movement. The German Army was not modern enough to overcome these difficulties, and therefore was forced to fight in winter and during muddy periods as best it could without the assistance of operative motor vehicles. This retrogression of about a century was a problem which could be dealt with only by improvisation.

The great forest and swamp areas of Arctic, Northern, and Central Russia often forced all movement into the narrow lanes of a few sand and swamp roads, and made it extremely difficult and time-consuming. Development of the columns was generally out of the question. The execution of any and all measures required a multiple of the usual amount of time, and the advantage of motorization was almost negligible.

Sand, mud, and snow impeded the advance of all types of troops, and put great strain on motors. Lined up and jammed along one road, the troops slowly and painfully inched forward—a long snake crawling slowly over the difficult ground. The halt of one part of the snake stopped all parts behind it, pressing them still closer together. Weak bridges barely supported the infantry vehicles. Extensive bridge and road repairs were necessary, and many defiles had to be traversed. Previous experiences and doctrines were useless under these conditions. Time calculations, the most important factor in operations, had to be based on entirely new concepts. Frequently the time required for a movement could not be estimated even approximately. It continued to run far in excess of the expected maximum. Remedies were difficult and could be achieved only by flexibility and practice.

In by far the largest part of Southern Russia, and in most of the swampless areas of Northern and Central Russia, travel in dry weather was considerably better, and the terrain, too, was passable for vehicles of all types almost everywhere. During that time, operations on even the largest scale were possible everywhere with the exception of the swamp areas.

The principle of establishing lanes of movement rather than routes of advance proved satisfactory for the Germans as well as for the Russians; the same was true of the separation of lanes of movement for motorized and nonmotorized units. Here, the German motorized troops had to be allotted the lanes with the best roads. Engineers were always placed far up in the column so that they might quickly reinforce bridges and eliminate terrain obstacles. Only strict regulation of traffic and relentlessly severe discipline guaranteed the best possible progress. Every halt for rest had to be closely timed, passing procedure strictly regulated, and priority definitely determined. Each driver who pressed forward in unguarded moments became a traffic violator. For that reason, trained troops were needed for traffic control, and had to be used, just as every tactical unit, according to the point of main effort. Likewise, all staffs and higher headquarters had to abide by traffic discipline since exceptions only caused confusion. In particularly difficult large-scale movements, special purpose staffs under the command of senior officers were employed.

The rate of progress of motorized troops could be roughly estimated in advance only if they were traveling on hard-surfaced roads. A rule of thumb was that on average dry roadways, motorized troops made from 5 to 6 miles per hour, and foot troops from 1 to less than 3 miles per hour. Terrain and road conditions in the East required, according to German experience, three to four times the amount of motor fuel needed under normal conditions in Europe.

The assumption that long columns can easily be stopped by the enemy appears justified. However, it developed that the Russian overestimated the constraining effect of channeled movements. In almost every case he blocked only the roads and bridges with task forces deployed without breadth or depth. It was, therefore, not too difficult to knock out such enemy blocking attempts by attacks against the flanks and rear of the enemy groups. This maneuver required two conditions for success: reconnaissance far to the front, and incorporation of combat forces capable of cross-country movement at the head of the march groups. No matter how easy it was for vehicles with cross-country mobility to cross great, open stretches in any direction during dry seasons, on long marches they were confined mostly to the existing roads, since the Russian terrain always confronted them with terrain obstacles which they were unable to overcome (swamps, water-

courses, ravines, steep rises, etc.). Furthermore, it required considerably more time and fuel to move cross-country.

In drawing any conclusions from the battles of the German armies in the East it is to be noted that the German armed forces went unprepared into the Russian winter and into the muddy periods, and for that reason they faced numerous difficulties and emergencies which could have been avoided by conscientious preparation.

PART THREE

PECULIARITIES OF RUSSIAN TACTICS

Chapter 7

General

An understanding of Russian tactics demands a clear conception of the premises on which they are based. Russian tactics have their roots in the Russian himself and in his social order; in the Russian and mass with its climate and soil conditions, its expanse, and its varied topography. These points will be described in detail in the following pages, and illustrated by numerous examples. The examples should permit insight into the practical effect of these characteristics under various conditions, and should illustrate how the German command coped with them.

While the bulk of the Red Army consisted of infantry divisions which were combined into corps and armies and supplemented by numerous GHQ troops (artillery, antitank, and engineer brigades, as well as tank and self-propelled artillery elements), there were also the large, highly mobile tank and mechanized corps—the strategic force—which in most instances were combined into tank armies. Tank corps and mechanized corps were seldom placed under infantry armies. This method of organization reveals the effort of the Russian high command to assure strategic mobility. That mobility was demonstrated in the sweeping employment of these large, fast forces. As soon as the battle fronts became static (position warfare), the Russian command withdrew its tank and mechanized forces, and did not commit them again until the infantry had breached the enemy defensive system. This mode of employment coincided with the concepts expressed in the Russian field service regulations. In fighting for a system of defensive positions, GHQ tank and self-propelled artillery regiments (that is, not the organic forces of the mobile corps) supported the infantry divisions in great numbers.

Because of the long duration of the war it was possible to observe the combat methods of the Russian in all phases. During the first winter in Russia it was evident that the German lower command would have to find new methods of fighting if it wanted to be success-

ful. The extensive area, the mass employment of men, the pecu characteristics of Russian fighting methods, and the different climat conditions forced the Germans to develop a new line of tactical do trine. In logical sequence, this doctrine was derived from close obs vation of all Russian habits, Russian reaction to German fighti methods, and thorough exploitation of Russian weaknesses. Only better-led soldier, and one superior in fighting qualities, had any pro pect of success. In order to make details about the characteristics the Russian available to all concerned, it was exceedingly important compile the information and to disseminate it, particularly to th replacement training units and to the schools. There had to be constant flow of instructors with combat experience to these units i order to train replacements and new recruits according to the late experiences.

These measures proved invaluable to the Germans. Divisions tha had been newly formed, or transferred from other theaters, and sen to the East without enough officers and noncommissioned officers wit prior experience in the East, failed in the beginning almost witho exception and suffered heavy losses. On the other hand, even rem nants of divisions which had long been going through the hard scho of the East, made outstanding accomplishments, both in Russia an on all other fronts.

Chapter 8

Reconnaissance and Security

[illegible] march reconnaissance and security generally corresponded [illegible] concepts. Activity was not especially intense, but very [illegible] adapted to the objective and to local conditions (terrain, [illegible] transportation routes, and weather). In his march recon- [illegible] the Russian was very hesitant, groping, and cautious, and [illegible] himself much time. If he found no enemy resistance, [illegible] promptly plunged ahead into the unknown without further [illegible] naissance.

[illegible] engagement at Maloryta at the end of June 1941 grew out of [illegible] front of a Russian rifle division east of the Bug near Wlodawa [illegible] flank of German armored units which were rolling from [illegible] Litovsk through Kobryn in the direction of Slutsk. The Rus- [illegible] division had sent ahead armored reconnaissance cars. These [illegible] their appearance about half a day in advance of the division [illegible] encountered the German 255th Infantry Division which was [illegible] from Wlodawa on Maloryta. Although the terrain (Prip- [illegible]) was extremely unfavorable for reconnaissance by [illegible] cars, they advanced until two cars had been knocked out. [illegible] withdrew. Instead, there appeared after a few hours in- [illegible] security detachments, already deployed as a thin screen of [illegible]. Several miles behind followed the rifle division split [illegible] teams, which were deployed over a front of about 6 miles, [illegible] gaps between the teams.

[illegible] rifle division had undoubtedly anticipated an encounter with [illegible] Germans in the vicinity of Maloryta, and had sent out motorized [illegible] naissance to obtain the information needed for deployment of the [illegible] The infantry screens following later served as local security [illegible] battle teams.

[illegible] section southeast of Plavskoye in November 1941 the Russians [illegible] to thrust from Yefremov along the main road to the north- [illegible] the direction of Tula, into the rear of German armored units [illegible] before Tula. (Map 5) When the leading elements of [illegible] German 167th Infantry Division met them near Teploye, the [illegible] were as surprised as the Germans. It is certain that they had [illegible] on meeting the enemy there. On this basis, their advance [illegible] as typical of a Russian march against the enemy with [illegible] usable road available, when direct contact with the enemy

is not yet expected. Again, several armored reconnaissance ca appeared at first, but they seemed to have only local reconnaissan missions. They moved ahead by bounds. Behind them, followin German procedure, came infantry security detachments. Only th followed the foremost division (6th Rifle). This division possesse numerous trucks which, however, were not used until later durin local shifts on the battlefield. They were not intended for the str tegic forward displacement of the division at this time. On th road behind the 6th Rifle Division, further infantry divisions wi fewer trucks followed. Several days later, when the battle w already in progress, a cavalry division which had come up on a ba side road running to the west appeared. A tank brigade which ha been standing ready behind the long column of rifle divisions w thrown forward in a single movement only when the battle ha reached its climax.

It seemed as if in an advance against the enemy, the chain of ri divisions following one another was not to be disturbed. Accordingl though it would have been possible to move a single division forwar this was not done. Perhaps this maneuver was also made to prev the enemy from recognizing the movement prematurely. Had th cavalry division advanced simultaneously with the rifle divisions, th Russians would not have been able to surprise the Germans.

The following example from the Kandalaksha front shows the u of stationary security detachments for the protection of a flankin movement. About 1 mile in front of German strong points in th no man's land of primeval forest north of the Arctic Circle there w a small range of hills, the Ahvenvaara. It was unoccupied most o the time, but now and then either side would occupy it temporaril as an anchor point for operations. One day in March 1944 this ran of hills was again occupied by weak Russian forces. Assuming th the Russians would, as they had for years, leave again after a sho time, the Germans took no action. In a few days, however, a wh battalion had infiltrated, and it was too late to dislodge them. I the same way, the Russians occupied an elevation farther to th west, where they drove off weak German security detachments an immediately set up a strong point. Under the protection of these tw points, the Russians moved their attack troops into the northern fro This was an instance of planned, far-sighted preparation for movi attack troops into the jump-off position for a subsequent attack ba on a stabilized front. The Russians were completely successful i their security measures for those movements.

The preceding three examples reveal that the Russian dem strated great adaptability in march reconnaissance and security, a that he knew how to take proper action under diverse circumstan

the warfare the use of fast-working motorized reconnaissance served on approaching an expected enemy, and as its result loped advance of battle groups under cover of local infantry detachments. In advancing upon an enemy with whom an ct is not anticipated in the near future, the Russian nor- ploys an almost schematic local march-reconnaissance pat- rmored reconnaissance cars moving ahead in rapid bounds, ed them normal infantry march security. There also seems definite effort to hold the forces together and to prevent on the part of individual elements. Further, in a kind of warfare—even in primeval forest wilderness—first there is olical establishment of firm strong points, under the protec- which the march movements of the units destined to attack equently to be executed. Surprise attacks into the Russian movement—in the example presented, such surprise attacks ve meant a flanking march of almost 40 miles—are thereby minated.

bilized fronts, the Russian conducted his reconnaissance with or by reconnaissance in force. He was exceedingly adept at reconnaissance in offensive as well as in defensive operations. w how to adapt his reconnaissance patrols to the terrain and employ them in great numbers. Seldom could any conclusion tentions of the Russian enemy be drawn from his recon- patrol activity.

reconnaissance in force, the Russian employed forces at least pany strength, but frequently also in battalion and regimental gth. They were supported in their operations by concentrated ery fire, and often by accompanying tanks as well. The main tive of such attacks was the taking of prisoners, and sometimes ture of an important terrain feature.

ther frequently employed Russian method of reconnaissance the ambush of enemy reconnaissance patrols. The Russian was ter at this procedure. Well camouflaged, he could lie in wait urs until the opportunity presented itself. He also knew how k up and surprise isolated outguards. The employment of dogs in tracking ambush patrols proved a satisfactory German measure.

Russians also made considerable use of the civilian population lligence missions, using them to obtain the desired reports on my situation. A favorite practice was the employment of to 14 years old. They were first trained for this work and owed to infiltrate at suitable front sectors. Before the offen- July 1943, for example, more than a dozen such children were up in the Byelgorod sector alone. They gave detailed reports

on the kind of training they received and on their *modus operandi* The training of these children had been supervised by Russian officers. It had lasted 4 weeks, and there had been 60 participants. The youths came from communities near the front on both sides of the battle lines and therefore were thoroughly familiar with the locale Many were staying with relatives or acquaintances in German-occupied localities, and were therefore not easy to discover and apprehend. Their talent for observation and their skill at spying were remarkable. For this reason, civilians in localities near the front (4 to 6 miles behind the front line) had to be evacuated not only because of the danger from enemy fire, but also as a preventive measure against espionage.

Chapter 9

Offense

The national characteristics, which have already been described, and the peculiarities of the country were the principle factors determining the Russian conduct of battle.

Winter: the Preferred Season

The Russians preferred to carry out their major offensives in winter because their troops were accustomed to that season and very well equipped and trained for it. The Russians were superior to all peoples of Central and Western Europe in enduring rigors of weather and climate. Casualties from the cold were an exception in the Red Army. Soldiers with frostbite were severely punished. Even in the harsh winter of 1941–42 the Russians were able to spend many days in the snow, protected only by simple windbreaks, without detriment to their health.

For instance, in the winter of 1941–42, from 6 December 1941 to 4 April 1942, the Soviets carried out their first major offensive in the area west of Moscow. They penetrated to the Vyazma-Rzhev line. In their large-scale attack from the Stalingrad-Don area the Russians succeeded in encircling the German Sixth Army at Stalingrad, and in overrunning the front of the German allies. Between 19 November 1942 and the middle of March 1943 they succeeded in creating a fluid situation along a 1,000-mile stretch of the Eastern Front, and in penetrating up to 300 miles toward the west.

On Christmas of 1943 the Russians began an offensive from the area southwest of Kiev. It continued until the thaw started in March 1944 and led to the annihilation of German divisions in the Cherkassy pocket, the encirclement of Tarnopol and of the German First Panzer Army, and the retrograde correction of the German front to a line east of Stanislaw-Lwow-Kowel.

The Russian general offensive, begun along the entire Eastern Front in mid-January of 1945, culminated in the occupation of Hungary, Poland, Silesia, East Prussia, and Pomerania. After short local halts, the Russians stood before Vienna and Berlin, and in cooperation with the armed forces of the Western Powers brought about the end of the war.

II. The Employment of Mass

Only the use of masses of men and equipment enabled the Russians to accomplish these great feats. Even in World War I the "steam roller" was the core of the Russian system of attack. At that time the concept was limited to the employment of the human mass, which resulted in initial successes but cost myriads of human lives. Later, undermined politically from within, the system finally disintegrated sealing the doom of the Russian Imperial Army.

The surprise element of the attack on the Eastern Front by the Germans in June 1941 prevented the immediate use of Russian mass tactics and caused Soviet reverses. Relying, however, on inexhaustible reserves and the rigors of its boundless territory, the Soviet Army concentrated human masses and created anew the famous steam roller. Strengthened by a mass of equipment and welded together by the caresses and whiplashes of communism, it became invincible despite numerous setbacks. Step by step the German Army was pounded to pieces and crushed as it succumbed to what might be termed the modern "super steam roller."

As early as 1941 the Russians made repeated attempts to check the German offensive by counterattacks. To this end they opposed it with cavalry and tank forces, and sometimes with masses of infantry. They succeeded in checking the German Army locally and temporarily, but were unsuccessful in stopping the great offensive as a whole. The following examples illustrate the Russian type of attack at that time.

The battle in the Dnepr-Berezina triangle (mid-July to mid-August 1941) resulted from Timoshenko's plan to envelop in a pincers movement both flanks of the German armored units which had advanced across the Dnepr, and to cut them off from the rear. Since the northern arm of the pincers had already been destroyed near Orsha, and the German LIII Infantry Corps had almost made connection with the armored units on the Dnepr by a rapid advance via Slutsk-Bobruysk, a battle developed not between Timoshenko and the armored units, but between the Russians and LIII Infantry Corps, which was assuming the protection of the flanks and rear of the German armored unit. (Map 3)

The attack was very carefully prepared. As early as February 1941, during a conference near Bobruysk, Timoshenko had discussed this operation in a kind of map exercise with his higher commanders. In order to put it into effect, three divisions located in the vicinity of Kiev were transferred to the neighborhood of Gomel immediately after the outbreak of hostilities. Here, they were excellently concealed and kept in readiness until the time for action came. The Moscow School of Artillery was called upon. By interrogation of Russian pris-

oners, 53 different rifle regiments were identified during the course of battle, some of them coming from as far away as the Caucasus. In order to take immediate advantage of the expected success, a detachment of specialists from Moscow very quickly repaired the railroad bridge over the Dnepr at Zhlobin during the course of the battle. The bridge had been blown prematurely when German armored units approached the town. Timoshenko reopened the bridge in person. Thus, all preparations seemed to have been made to ensure the success of the operation and to exploit it. The higher command had done as much as could be expected.

Tactical measures during the first stage of the battle were entirely appropriate. The German 4th Panzer Division, which had crossed the Dnepr near Rogachev, was thrown back across the river. Simultaneously with the withdrawing armored vehicles, the Russians crossed the Dnepr in close pursuit, and for the time being there was nothing to stop their advance, since the armor had turned off to the north. At Zhlobin, where there were only weak armored security forces, the Soviet Army faced practically no opposition at all. The Russians did not take advantage of this favorable situation. They moved forward very slowly, so that very small, hastily motorized forces of the German 35th and 267th Infantry Divisions could be thrown against them. These German forces held the Russians at bay until the divisions themselves arrived after a day or two. Thus it happened that the Russians reached only 6 miles to the west of the Dnepr both at Zhlobin and Rogachev. One might almost think that this was the area that had been planned as the first day's objective in Timoshenko's war game. More territory could unquestionably have been taken, had the advance been conducted more energetically. Lack of follow-up, however, can be attributed to the intermediate command. By the time the high command learned of the situation, it was too late. The subsequent Russian attacks were carried out in the form of outflanking and enveloping movements while pinning down the front. They occasioned many a critical situation, but when the German's greatest worry had been eliminated after the commitment of the 55th Infantry Division, and the front began to be more stabilized, the Russian command exhausted itself by repeated attacks on the same points. The Russians failed to recognize that the opposing forces were now of equal strength, and that therefore nothing more was to be achieved by the battle.

It was soon evident that the strategic situation of the Russians was becoming steadily less tenable. The advance of XII Infantry Corps northeast of Rogachev, and of XLIII Infantry Corps to the lower Berezina, made the grave danger facing the Russians unmistakably clear. Nevertheless, they held firmly to the originally planned thrust, even after it was time to escape envelopment. This situation led to the formation of the Gomel pocket and the annihilation of the Rus-

sian main attack army, a catastrophe which could have been avoided had the Russian command drawn its conclusions from the situation in time.

In the fighting in the Porechye bridgehead on the Luga (mid-July to August 1941) a strong combat element of the 6th Panzer Division succeeded in effecting a surprise capture of the two Luga bridges at Porechye (60 miles southwest of Leningrad) on 14 July 1941, and in forming a bridgehead. (Map 4) The strong armored forces which were to follow remained stuck for days in swampy forests. Therefore, the 6th was for a long time entirely on its own. Three alerted proletarian divisions and armored units were dispatched from Leningrad to the Luga by rail and motor vehicles, with the mission of destroying the German force consisting of two infantry battalions, one panzer battalion, two artillery battalions, one Flak battalion, and a company of engineers.

Nevertheless, the German force was able to stand its ground against an enemy six times as strong, despite the fact that it could no longer be reached and supported by aircraft. The bridgehead was over 2 miles deep, but only 400 yards wide, and was completely surrounded by swampy forests which could be traversed in summer by infantry. The Russians, however, had no visibility, because the edges of the woods were in German hands. Russian artillery fired 20 times as many rounds per day as did the German batteries. It pounded the bridges and the edges of the woods. In unobserved fire the Russians sent more than 2,000 medium shells a day in the direction of the bridges without ever hitting them. Enemy aircraft roared all day above the narrow corridor of the bridgehead and inflicted serious losses. Soon, therefore, the road was lined with a long row of German soldiers' graves, marked with birchwood crosses. As often as 10 times a day the enemy attacked the road fork which was enclosed by the projecting arc of the bridgehead. Each attack was headed by as many tanks, echeloned in depth, as the narrow road would accommodate. Time and again the enemy attacks were repulsed, and time and again they were renewed. Wave after wave of Russian forces assembled, concealed by many wrecked tanks and heaps of corpses, and stormed recklessly into the murderous defensive fire. The attacks did not subside until the enemy no longer had the necessary men and ammunition at his disposal. Soon, however, replacements of proletarians and new ammunition supplies arrived from Leningrad. The assaults on the road fork were stubbornly and incessantly resumed until passage through the narrow attack corridors was no longer possible because they were completely clogged by disabled enemy tanks and decaying heaps of corpses. Later, the Germans counted more than 2,000 dead Russians and 78 knocked-out enemy tanks in this narrow combat zone alone.

The only variation consisted of enemy attacks, sometimes along ...h sides of the road leading to the fork from the north, and at ... times on the road coming from the south. A simultaneous at... from both sides never took place, however, for different divisions ... involved which did not coordinate their attacks. The tanks ... attacked along the northern road. Their attacks, too, ceased ... when it was no longer possible to pass between the 78 wrecks. ... swampy forests and a reservoir 50 feet deep prevented bypassing. The next attacks were made through the woods to cut off the bridgehead. It was impossible to prevent the mass assaults since there were ... small number of forces to man the long flanks of the bridgehead. ... attacks were expected and the defense arranged accordingly. ... tank units held in readiness, one at the road fork and one at ... bridges, were reinforced by armored infantry companies and ... orders to attack immediately from both sides and to annihilate ... enemy if he broke through to the road. This flexible fighting ...hod proved effective. With the same stubbornness he had formerly ...wn in attacking the road fork, the enemy made several assaults ...ly on the flanks, and each time succeeded in reaching the road. ...thin a scant half hour he would be attacked from both sides and ...troyed by tank fire. Only remnants succeeded in escaping through ... woods. Not until the attempt to cut off the group failed repeatedly ...th severe losses, did the enemy give up this procedure and attack ... bridges directly. In this way a 150-man Russian battalion suc...ded in reaching the southern bridge after overcoming its weak ...fenses. While the forces were crossing the bridge, German armored ...sonnel carriers took them by surprise and completely destroyed ...m. Contrary to his usual custom, the enemy did not repeat this ...ature. Instead, he sent a reinforced infantry regiment from Kingi...pp, and later two battalions of the 3d Proletarian Division, against ... rear of the bridgehead. Both operations were caught in a pincers ...vement between the leading elements of the main German forces, ...ich had been stalled but were then approaching from the south...st, and a reinforced armored unit of the bridgehead coming from ... opposite direction. The regiment was scattered and the two ...talions were destroyed. The bridgehead was then strengthened ... German forces coming up from the rear, and became impregnable.

The foregoing example demonstrates the complete failure of the ...ermediate and lower Russian commands which did not understand ... to coordinate the various units and weapons into a common, simul...ous attack from all sides. The weak German units, which were ...ting a losing battle, would not have been able to withstand such ... attack.

The Russian attacks in the battle southeast of Plavskoye (Map 5) ...ember 1941 developed from a pure meeting engagement. The

Russian forces, which were to advance against German armored forces before Tula, suddenly faced LIII Infantry Corps coming from the west. The Russian command adapted itself skillfully to the new situation—a situation made easier on both sides because the point met first and each opponent was then able to deploy its forces from depths. It was, therefore, several days before the battle mounted to climax once both sides had deployed their long columns.

Strategically, the Russian thrust on Tula was well planned. At this stage the Russian higher command also acted correctly from a tactical standpoint, and the Russian 6th Rifle Division, which bore the initial brunt of the battle, was tactically well commanded. Under the completely unclarified conditions, the Russian higher command apparently wanted to avoid having its foremost division repulsed, and so brought it to a halt. The division, deployed laterally, blocked the advance of the first German regiment to appear. In addition, the Russian higher command attempted to bring up for the anticipated battle all forces available in the vicinity. The Russian cavalry division, which had advanced north of the combat area, abandoned its operations against the 112th Infantry Division and appeared on the scene. A cavalry division located near Yefremov was ordered forward, over side roads past the march columns of the Russian rifle division, to cut the Orel-Plavskoye road in the neighborhood of Chern. In this connection there ensued a sharp clash between the commander of the Bryansk Army Group in Yelets, who was in command here, and the commander of the cavalry division from Yefremov.

According to captured documents the army group commander ordered the cavalry division to proceed by a forced march to the Orel-Tula road, a distance of 40 miles. The cavalry division commander made a written reply stating that this was impossible because 20 percent of his horses were completely unshod and, of the remaining horses 80 percent had no hind shoes and 20 percent no fore shoes. For this reason the division was unfit to move. Thereupon the higher commander repeated the order for the forced march. The cavalry division started out, but actually went only 25 miles. It could go no farther but it had effected a connection with the front and extended it. The iron determination of the army group commander had not achieved the desired success, but it had created new difficulties for the German.

The Red 6th Rifle Division was very mobile in its fighting. When its western flank was threatened and the divisions following it had not yet arrived, it withdrew far enough in its numerous trucks to eliminate the threat to its flank. It did not move forward again until the next division could be turned to cover the threat to its flank. The other divisions were employed according to the prevailing situation and formed concentrated points of main effort. They attacked by deploying directly from march columns, without going into assembly positions. Not until they were all disposed along the battle front was the [illegible] brigade, which had been far to the rear, committed in order to [illegible] the decisive blow against whatever seemed to be the weakest [illegible]. This was on about the fifth day of battle. Only rapid shifting [illegible] German forces prevented a Russian success.

To be sure, when LIII Infantry Corps subsequently launched its [illegible] the rifle division, which had become immobile to a great extent, [illegible] wiped out and the westernmost cavalry division had already been [illegible] annihilated. However, the bulk of the Russian forces escaped annihilation by hasty withdrawal, sacrificing much of their equipment. This was the first instance in the corps' experience in which the Russian [illegible] command withdrew troops from a situation that was beginning [illegible] to take an unfavorable turn, instead of continuing to attack. The intervention of LIII Infantry Corps upset the Russian large-scale [illegible] of operation from the very start. The attempt to force a way [illegible] Tula in spite of this had failed. The Russian high command now [illegible] fully drew the proper inferences from the situation. They adopted [illegible] methods.

Development of Russian Offensive Tactics

The Russians carried out their first preconceived large-scale offensive in the severe winter of 1941–42 in the Moscow area. It was well thought out, and cleverly exploited the detrimental effect which the muddy period and the onset of winter had on the striking power of the German Army, unprepared as it was for winter warfare. This offensive marked the turning point in the Eastern Campaign; it did not, however, decide it, as the Russians had expected it to do. Therefore, it did not achieve the intended purpose.

According to the Russian fighting method the mass attack was supposed to shatter the German front. Units penetrating and infiltrating through the lines were to cut off the supply lines.

The German front was not yet ready for defense when frost set in. Some sectors were still fluid. The solidly frozen ground and the exceedingly heavy snowfalls precluded the methodical construction of a defensive position. Taking advantage of the dusky weather and the blizzards, the first waves of Russians, clad in white camouflage suits, worked their way close to the German positions without being detected. Wave after wave, driven on by the commissars, surged against the German lines. At that time the Russians knew nothing about methodical preparation for an attack by concentrated fire of heavy weapons and artillery, or by the employment of massed tanks. When the attacks continually failed and enormous losses were incurred, the Russians changed to infiltration tactics. Forces capable

of rapid movement were generally used for this purpose. Tanks a ski units were preferred when the terrain permitted their use. I cept for a few local reconnaissance thrusts, the Russians regula attacked on a broad front. They always assembled far superior for for those attacks. Cooperation between the different arms of t service improved noticeably. It was patterned after German offe sive tactics. Russian methods of attack were subjected to ma changes as a result of war experiences. In 1941–42 the Russia always resorted to mass attacks after bringing up strong reserv Thus, for example, they repeated their attacks in the same place agai the Fourth Army for weeks at a time during the so-called Battles the *Rollbahn* (express motor highway, in this case the Minsk-Mosc road) near Smolensk between 21 October and 4 December. Coope tion between the various infantry weapons likewise was imperfe Attacks on German unit boundaries, which the Russians always sou and usually detected, were dangerous. Artillery support was acti but as yet often without a definite fire plan.

The year 1943 brought a definite change in the method of atta Concentrated artillery fires were employed more frequently and su plemented by massed mortar attacks. The Russians tried to infiltra through known German weak points. For this purpose they prefer forest areas or hollows previously designated by the tactical co mand. If they succeeded in infiltrating by this system, they imm diately entrenched themselves and laid mines. Subsequently, a peri of vulnerability set in because the artillery and heavy weapons we brought up slowly, and cooperation with them ceased abruptly.

The employment of massed tanks brought about a revolutiona change in Russian tactics in 1944. After a drum fire of artillery, large number of tanks led off the attack, followed by the infantry deep wedges. While the artillery gave good support at first, co munications with it frequently broke off during a further advan To the very end of the war it was difficult for the Russians to o ordinate fire and movement. The penetrations were deep, and i variably in a straight line. Then a halt was called in order to bri up the greatest possible number of infantry during the night. The masses of infantry dug in as soon as they reached the points of t attack. The assault wedges closed up in echelons behind the tan

Since the German counterattacks were usually launched when t enemy infantry was separated from its tanks, the Russians began 1945 to make deep thrusts with infantry riding on tanks. These thru often went so deep that contact with the main forces was lost. T Russians were able to take the risk because the German front 1945 no longer had adequate reserves available to destroy the a advanced, strong enemy forces.

...ough the Russians built field fortifications whenever they halted ...d not follow that they had plans of attacking. The Russian ...s dug in. The time to be suspicious came only when a gradual ...ing toward the German lines into a jump-off position for an ...ault could be noted in connection with their entrenchment activ- ... That usually meant preparation for attack. Recognized prep- ...ns behind a front sector did not necessarily indicate an attack ...t particular point. Surprise attacks were launched by skill- ...y and quickly shifting attack forces to the planned assembly area ...ing the course of one night. Numerous reconnaissance thrusts, ...orted by artillery and tanks, and conducted on a broad front ...by day and night in strength up to a regiment, were to procure ...ation for an attack and to confuse or deceive the Germans as ...e time and place of the attack. Movement behind the front, even ...ight, was not necessarily followed by an attack. The Soviets were ...skillful in the use of feints, sham installations, and dummy maté- ...l of all types. Evaluation of artillery observation data, often ...takingly carried on for weeks, and constant interrogation of pris- ..., whose statements were checked by German reconnaissance oper- ..., produced reliable evidence of an impending attack. The ...s often cleverly concealed a projected assembly of their artil- ...y extraordinary emplacement activity and by a highly mobile ...ment of roving guns and batteries. They were also very cau- ...about fire for registration whenever it was not executed for ...es of deception.

...not until later did the Russians make extensive use, in the attack, ...rtillery fire based on mathematical computation. Despite all ...efforts to conceal their true intentions, however, the pattern ...my artillery activity, carefully worked out day by day, still ...ded very reliable clues as to impending enemy attacks. The ...ans could often observe that a few days before an attack the ...y moved about as little as possible by day or night, and that his ...t activity decreased noticeably, until suddenly the attack was ...ched out of a clear sky.

...ondary attacks and feints were often launched at the same time ...e main attack in order to make the assult front appear as broad ...sible, and at the same time cause the Germans to split up their ...forces. In the summer of 1943, the Russians used smoke on ...d front while carrying out attacks across the Donets. This ...ealed preparations and denied observation to the Germans. At ...time the Russians incurred severe losses. The German XXX ...ry Corps repulsed all attacks and attempts to cross the Donets ...mediately concentrating the fire of all heavy weapons straight ...smoke. At that time the Russians still were very inexperi- ...in the use of smoke and did not use dummy smoke screens.

Likewise, they failed to understand the principle of laying a smok screen over German observers in order to blind them. At that tim too, the Russians did not necessarily carry out their attacks wit artillery preparation. When they did, their artillery, massed in points of main effort, laid a rigid concentration on infantry position battery positions, towns, and road junctions. During the artiller preparation the infantry worked its way forward into the jump-o position by infiltration, and from that point made a mass advanc When the first objective, which was still within range of the sup porting artillery, was reached, a long halt was called since the Russian were not in a position to displace their artillery and heavy weapon forward in a manner that would allow a continuous forward thrus The infantry immediately dug in and felt its way forward only b combat reconnaissance. During the halts, the infantry had to re almost exclusively on local support from accompanying tanks an mortars. The Russian heavy mortar battalions (probably 120-mm were an ideal direct-support artillery for infantry. However, the also were too slow for continuous support of the infantry in an attac The infantry-support tanks acted very cautiously and fought mo in the manner of self-propelled assault guns, or like armored artiller pieces of the infantry.

Even at the beginning of the Eastern Campaign the Russian in fantry was very clever at utilizing terrain features. If the Russian could not continue their current main attacks with the desired succe by day, they proceeded to launch local attacks at night. In that cas they either launched sudden mass attacks, or infiltrated at many point through the German lines which for the most part were lightly manne Thus, in a night attack on the 97th Light Infantry Division in th winter of 1941, they broke through east of Artemovsk in the Donet Basin with an entire cavalry division. However, the next day thi division was cut down to the last man. Also in the battle of encircl ment at Uman in 1941, and at Beli—southeast of Toropets—i November 1942, thousands of Russian soldiers without equipment o heavy weapons penetrated the German lines during hours of darkne by piecemeal infiltration. Well-prepared night attacks were rare.

Low-flying aircraft, supporting the main efforts, picked as thei principal targets the defending infantry, batteries, reserves, supplie and villages in the divisional combat sectors. The attack planes di not venture far into the rear area.

In order to develop the war of position into mobile warfare lat in the Eastern Campaign, the Red Army command concentrated it forces, which were numerically far superior to those of the German into more and more powerful masses at the points of main effort and after heavy artillery concentrations, broke through or sent the Germa front reeling. The Russian command attempted to conceal strateg

preparations for large-scale attacks from German reconnaissance, and therefore carried them out only at night. Preparations could thus be detected only by night aerial reconnaissance. Night truck transport operations on a grand scale (2,000 to 3,000 trucks in each direction in the course of one night), which usually took place shortly before a large-scale attack, were the first reliable indication of an imminent Russian offensive.

The Use of Armor

The Russian armored force played only a subordinate role at the beginning of the war. In the advance of 1941, most German troops encountered only small units which supported the infantry in the same manner as the German self-propelled assault guns. The Russian tanks operated in a very clumsy manner and were quickly eliminated by German antitank weapons. The Russians carried out counterattacks with large tank forces, either alone or in combined operations with other arms, only at individual, important sectors.

On 23 June 1941 the German Fourth Panzer Group, after a thrust from East Prussia, had reached the Dubysa and had formed several bridgeheads. The defeated enemy infantry units scattered into the extensive forests and high grain fields, where they constituted a threat to the German supply lines. As early as 25 June the Russians launched a surprise counterattack on the southern bridgehead in the direction of Raseiniai with their hastily brought-up XIV Tank Corps. They overpowered the 6th Motorcycle Battalion which was committed in the bridgehead, took the bridge, and pushed on in the direction of the city. The German 114th Armored Infantry Regiment, reinforced by 2 artillery battalions and 100 tanks, was immediately put into action and stopped the main body of enemy forces. Then there suddenly appeared for the first time a battalion of heavy enemy tanks of previously unknown type. The tanks overran the armored infantry regiment and broke through into the artillery position. The projectiles of all defense weapons (except the 88-mm. Flak) bounced off the thick enemy armor. The 100 tanks were unable to check the 20 enemy dreadnaughts, and suffered losses. Several Czech-built tanks (T36's) which had bogged down in the grain fields because of mechanical trouble were flattened by the enemy monsters. The same fate befell a 150-mm. medium howitzer battery which kept on firing until the last minute. Despite the fact that it scored numerous direct hits from as close a range as 200 yards, its heavy shells were unable to put even a single tank out of action. The situation became critical. Only the 88-mm. Flak finally knocked out a few of the Russian KV 1's and forced the others to withdraw into the woods.

One of the KV1's even managed to reach the only supply route of the German task force located in the northern bridgehead, and blocked

it for several days. The first unsuspecting trucks to arrive with supplies were immediately shot afire by the tank. There were practically no means of eliminating the monster. It was impossible to bypass it because of the swampy surrounding terrain. Neither supplies nor ammunition could be brought up. The severely wounded could not be removed to the hospital for the necessary operations, so they died. The attempt to put the tank out of action with the 50-mm. antitank gun battery, which had just been introduced at that time, at a range of 500 yards ended with heavy losses to crews and equipment of the battery. The tank remained undamaged in spite of the fact that, as was later determined, it got 14 direct hits. These merely produced blue spots on its armor. When a camouflaged 88 was brought up, the tank calmly permitted it to be put into position at a distance of 700 yards, and then smashed it and its crew before it was even ready to fire. The attempt of engineers to blow it up at night likewise proved abortive. To be sure, the engineers managed to get to the tank after midnight, and laid the prescribed demolition charge under the caterpillar tracks. The charge went off according to plan, but was insufficient for the oversized tracks. Pieces were broken off the tracks but the tank remained mobile and continued to molest the rear of the front and to block all supplies. At first it received supplies at night from scattered Russian groups and civilians, but the Germans later prevented this procedure by blocking off the surrounding area. However, even this isolation did not induce it to give up its favorable position. It finally became the victim of a German ruse. Fifty tanks were ordered to feign an attack from three sides and to fire on it so as to draw all of its attention in those directions. Under the protection of this feint it was possible to set up and camouflage another 88-mm. Flak to the rear of the tank, so that this time it actually was able to fire. Of the 12 direct hits scored by this medium gun, 3 pierced the tank and destroyed it.

The Russian had not taken advantage of the critical situation of the German division which had resulted from the employment of the heavy 65-ton tanks. His infantry, which had broken through, did not become active again, but passively watched the proceedings. Therefore, it was possible to withdraw strong forces from the northern bridgehead and send them against the rear of the attacking tank corps. The latter immediately abandoned its success and retired to the east bank of the river. There, despite the fact that strong neighboring armored forces had already enveloped it and were attacking from the rear, it again held out far too long. The result was that the Russian tank corps lost the bulk of its tanks in the swamps. The infantry scattered and made its way through the woods along swamp paths.

On 26 June 1941 the Russians, by a tank corps thrust, wanted to relieve their forces which were encircled near Rawa Ruska, north of Lemberg. This tank corps consisted only of tank chassis mounting machine guns and guns up to 150-mm.; it had no motorized infantry support. Near Magierow it encountered organized defense of the German 6th Light Infantry Division in a day and night attack, and was repulsed. Sixty-three Russian armored vehicles were knocked out.

In the thrust on Vyazma (early in October 1941) the German 6th Panzer Division, committed in the main effort, reached the upper Dnepr and captured the two bridges there by a *coup de main*. (Map 1) That maneuver cut off Russian forces which were still west of the river and assured a continued thrust to the east.

On the following day the Russians attempted to parry this severe blow by a flank attack. One hundred tanks drove from the south against the road hub of Kholm. They were, for the most part, medium tanks, against which the Germans could send only 40 light tanks and 1 armored infantry company. However, these weak forces were sufficient to contain the dangerous thrust until antiaircraft and antitank guns could be organized into an adequate antitank defense between Kholm and the southern Dnepr bridge. Split up by tanks in forest fighting, the Russians never succeeded in making a powerful, unified tank thrust. Their leading elements were eliminated as they encountered the antitank front. As a result, the Reds became ever more timid and scattered in breadth and depth in such a way that all subsequent tank thrusts, carried out in detail by small groups, could be met by the German antitank front and smashed. Kholm and the Dnepr bridge, as well as their connecting road—which the Russians had already taken under intermittent tank fire—remained in German hands. After 80 Russian tanks had been put out of action, a break was made through the strongly fortified position on the east bank of the Dnepr, which was occupied by Red reserves, and the thrust from the southern bridgehead continued without concern for the Russians. The flank attack in detail by 100 Russian tanks near Kholm succeeded in delaying, but not in stopping, the advance of the German 6th Panzer Division.

While the German division with all its combat elements rolled along the road deep into Russian territory, hastily assembled Russian tank units and infantry, supported by several batteries, attempted to attack the 25-mile flank of the march column and stop its advance. Some of the Soviet batteries remained in their former positions and merely turned their guns around, while others rushed up at full speed and assumed fire positions in the open. Infantry and tanks advanced in a widespread chain against the German column, and the artillery im-

mediately opened fire with every battery as soon as it had shifted its front.

The attack turned out badly for the Russians. In an instant the German division was firing all its weapons. The division resembled a mighty battleship, smashing all targets within reach with the heavy caliber of its broadsides. Artillery and mortar shells from 300 throats of fire hailed down on the enemy batteries and tanks. Soon the Soviet tanks were in flames, the batteries transformed into smoking heaps of rubble, and the lines of skirmishers swept away by a swath of fire from hundreds of machine guns. In 20 minutes the work of destruction was completed. The advance continued and on the same day reached Vyazma, its objective. This completed the encirclement of 400,000 Russians.

The Russian clearly recognized and twice tried to prevent the division's intent to break out of the bridgehead and push eastward from Kholm. He failed each time, although he had adequate forces and means at his disposal. In both cases the Russian command was at fault. In the first instance it was unable to execute a coordinated blow with a force of 100 tanks; in the second, it did not succeed in readying and coordinating all the available forces and antitank defenses in time.

The command of large tank units was usually difficult for the Russians even in later years. They had only a few competent armored commanders. In the tank force, too, successes were achieved only by the reckless use of masses. However, those tactics failed whenever even relatively adequate defense means were available to the Germans.

In the winter of 1942–43 the Russians employed four tank corps for a break-through near Kamenka on the Donets. By a thrust on Voroshilovgrad, the Russians would have been able to strike a crushing strategic blow at the deep left flank of Army Group von Manstein on the south bank of the Donets. Instead, they were attracted by Kamenka and Millerovo and therefore made an assault only against the wings of a provisional army which were strongly defended at that point, and in spite of their superiority achieved only a tactical success. At that time the attack of the Russian main force came as a surprise. In minor thrusts launched during the preceding days the Russians had probed the front of the provisional army, which consisted only of separate strong points (a frontage of 120 miles, and held by one infantry division, one reinforced mountain infantry regiment, one SS regiment reinforced by armor, one panzer battalion, and several Flak batteries). The Russians proved that they were still unable at that time to employ large tank units strategically.

During the course of the well-commanded Russian counteroffensive of Byelgorod, massed Russian tanks reached the area around Bogoduk-

hov, northwest of Kharkov, and Graivoron on the first day (5 August 1943), and then flowed like lava into the broad plain east of the Vorskla, where they were halted by German counteroperations from the Poltava-Akhtirka area. (Map 7)

Kharkov constituted a deep German salient to the east, which prevented the enemy from making use of this important traffic and supply center. All previous Russian attempts to take it had failed. Neither tank assaults nor infantry mass attacks had succeeded in bringing about the fall of this large city. Boastful reports made by the Russian radio, and erroneous ones by German pilots, announcing the entry of Russian troops into Kharkov at a time when the German front stood unwavering, did not alter the facts. When the Russian command perceived its mistake, Marshal Stalin ordered the immediate capture of Kharkov.

The rehabilitated Russian Fifth Tank Army was assigned this mission. The German XI Infantry Corps, however, whose five divisions firmly sealed off the city in a long arc, recognized the new danger in time. It was clear that the Russian Fifth Tank Army would not make a frontal assault on the projecting Kharkov bastion, but would attempt to break through the narrowest part of the arc west of the city, the so-called bottleneck, in order to encircle Kharkov. Antitank defenses were installed at once. All available antitank guns were set up on the northern edge of the bottleneck, which rose like a bastion, and numerous 88-mm. Flak guns were set up in depth on the high ground. The antitank defense would not have been sufficient to repulse the expected mass attack of Russian tanks, but at the last moment the requested 2d SS Panzer Division ("Das Reich") arrived with strong armored forces and was immediately dispatched to the sector most endangered.

The 96 Panthers, 32 Tigers, and 25 self-propelled assault guns had hardly taken their assigned positions when the first large-scale attack of the Russian Fifth Tank Army got under way. The first hard German blow, however, hit the assembled mass of Russian tanks which had been recognized while they were still assembling in the villages and the flood plains of a brook valley. Escorted by German fighters, which cleared the sky of Russian aircraft within a few minutes, wings of heavily laden Stukas came on in wedge formation and unloaded their cargoes of destruction in well-aimed dives on the assembled tanks. Dark fountains of earth erupted skyward and were followed by heavy thunderclaps and shocks which resembled an earthquake. These were the heaviest, 2-ton bombs, designed for use against Russian battleships, which were all the Luftwaffe had to counter the Russian attack. Wing after wing approached with majestic calm, and carried out its work of destruction without interference. Soon all the villages occupied by Soviet tanks were in flames. A sea of dust and smoke clouds

illuminated by the setting sun hung over the brook valley. Dark mushrooms of smoke from burning tanks, victims of the heavy air attacks, stood out in sharp contrast. The gruesome picture bore witness to an undertaking that left death and destruction in its wake. It had hit the Russian so hard that he could no longer launch the projected attack on that day, in spite of Stalin's order. A severe blow had been inflicted on the Russians, and the time needed for organizing German measures had been gained.

The next day the Russians avoided mass grouping of tanks, crossed the brook valley at several places, and disappeared into the broad cornfields which were located ahead of the front, but which ended at the east-west main highway several hundred yards in front of the main line of resistance. During the night motorized infantry had already infiltrated through the defense lines in several places and made a surprise penetration near Lyubotin into the artillery position. After stubborn fighting with the gun crews, 12 howitzers without breechlocks—which the crews took with them—fell into Russian hands. The points of the infiltrated motorized infantry already were shooting it out with the German local security in the wood adjoining the corps command post.

During the morning Red tanks had worked their way forward in the hollows up to the southern edges of the cornfields. Then they made made a mass dash across the road in full sight. The leading waves of Russian T34's were caught in the fierce defensive fire of the Panthers, and were on fire before they could reach the main line of resistance. But wave after wave followed, until they flowed across in the protecting hollows and pushed forward into the battle position. Here they were trapped in the net of antitank and antiaircraft guns, Hornets (88-mm. tank destroyers), and Wasps (self-propelled 105-mm. light field howitzers), were split up, and large numbers of them put out of action. The last waves were still attempting to force a break-through in concentrated masses when they were attacked by Tigers and self-propelled assault guns, until then mobile reserves behind the front, and were repulsed with heavy losses. The first thrust of the Russians was repelled. The price they paid for this mass tank assault amounted to 184 knocked-out T34's.

In the meantime, German infantry reserves supported by self-propelled assault guns from the 3d Panzer Division had captured the lost battery positions together with all pieces and, west of Lyubotin behind the main line of resistance, had bottled up the battalion of infiltrated enemy motorized infantry. Stubbornly defending themselves, the Russians awaited the help that their radio had promised.

The Russian changed his tactics and the next day attacked farther east in a single deep wedge, using several hundred tanks simultaneously. But even while they moved across open terrain along

the railroad, numerous tanks were set on fire at a range of 2,000 yards by the long-range weapons of the Tigers and Hornets. The large-scale Red attack was not launched until late in the forenoon. As the tanks emerged from the cornfields this time, they were assailed by the concentrated defense of all Tigers, Hornets, Panthers, self-propelled assault guns, and antiaircraft and antitank guns, and the attack collapsed in a short time with the loss of 154 tanks. The weak rifle units which followed were mowed down by the concentrated fire of German infantry and artillery as they emerged from the cornfields. The encircled Red motorized battalion had waited in vain for aid, but continued to fight on with incredible tenacity. In the late afternoon its radio announced the defeat of the unit and then fell silent forever. After 48 hours of heroic defense, the Red battalion was killed to the last man, including radio operators.

The losses thus far incurred by the Russians were enormous. However, they still possessed more than a hundred tanks, and experience had taught the Germans that further attacks were to be expected, even though they were predestined to failure in view of the now vastly superior defense. The few tankers taken prisoners were aware that death, or, if they were lucky, capture, awaited every one of their comrades.

Contrary to all expectations, an eerie calm prevailed throughout the following day. Several Red tanks crawled about in the cornfields and towed the damaged tanks away in order to reinforce their greatly depleted ranks. Summer heat shimmered over the bloody fields of the past days of battle. A last glow of sunset brought the peaceful day to a close. Might the enemy have given up his plan, or even refused to obey the supreme order to repeat the attack?

He came back, and on the same day. Before midnight, considerable noise from tanks in the cornfields betrayed his approach. The enemy intended to achieve during the night what he had failed to gain by daylight attacks.

Before he had reached the foot of the elevated terrain, numerous flashes from firing tanks had ripped the pitch-black darkness of the night and illuminated a mass attack of the entire Russian Tank Army on a broad front. Tanks knocked out at close range already were burning like torches and lighting up portions of the battlefield. More tanks joined them. The German antitank guns could no longer fire properly, since they could hardly distinguish between friend and foe; German tanks had entered the fray, ramming Russian tanks in a counterthrust or piercing them with shells at gun-barrel range in order to block the break-through. A steady increase in the flash and thunder of tank, antitank, and antiaircraft guns could be perceived after midnight. The main force of the German tanks had launched a counter-attack. Many tanks and several farm buildings went up in flames.

The plateau on which this great night tank duel was fought was illuminated by their pale light. This made it possible to recognize the contours of Red tanks at a distance of more than 100 yards, and to shell them. The thunderous roll turned into a din like the crescendo of kettledrums as the two main tank forces clashed. Gun flashes from all around ripped the darkness of night throughout an extensive area. For miles, armor-piercing projectiles whizzed into the night in all directions. Gradually the pandemonium of the tank battle shifted to the north. However, flashes also appeared farther and farther behind the German front, and fiery torches stood out against the night sky. Not until 2 or 3 hours later was calm restored in the depth of the German front. The conflict also gradually subsided in the battle position.

After daybreak the Germans could feel the battle was won although there were still Red tanks and motorized infantry in and behind the German position, and here and there a small gap still remained to be closed. The mopping up of the battle position, however, lasted all morning. By noon the position was in German hands and again ready for defense. Only a small patch of woodland, close behind the main line of resistance, was still occupied by Red motorized infantry supported by a few tanks and antitank guns. All attempts to retake this patch of woods had failed with heavy German losses. Even heavy, concerted fires of strong artillery units could not force the Russians to yield.

The tenacious resistance was ended only by an attack of flame-throwing tanks, which burned the entire strip of woods to the ground. The foremost of the Red tanks which had made the deep forward thrust was captured at the western outskirts of Kharkov by a divisional headquarters, and the crew members were taken prisoner. All the rest were put out of action by Flak teams.

The Red plan to take Kharkov by a large-scale night attack of the entire tank army had failed. The losses were more than eighty burned-out tanks, many hundreds of dead, thousands of wounded, and a considerable amount of equipment in this night of battle. The Russian Fifth Tank Army in the effort to recapture Kharkov lost 432 tanks in 3 days of fighting, and suffered such heavy losses of men and equipment that it ceased to be a combat factor for the foreseeable future. Kharkov remained in German hands until the high command ordered the troops stationed there to retire.

Blunders on the part of the leaders were only partially responsible for the fact that every one of the Red tank attacks failed, although the troops fought with extraordinary bravery. It was striking that the enemy had only weak infantry and artillery forces, and that his air forces did not participate effectively enough in operations. For these reasons the tank forces could not be adequately supported and

their successes could not be exploited. The Fifth Tank Army seems to have been forced to premature action for reasons of prestige by orders of the Russian Supreme Command.

In the winter of 1943–44 the German XXX Infantry Corps' 16th Panzer Grenadier Division experienced a break-through of strong Russian tank forces with a long-range objective in the Dnepr bend south of Dnepropetrovsk. Here the Russians, with tank divisions followed by motorized forces, made a deep thrust against the left flank of the German Sixth Army forces which were withdrawing in front of Nikopol. At that time, the German front enclosed Nikopol in a semicircle east of the city. As this strong tank thrust gained in depth, it decreased in power because it split up. It did not achieve its strategic objective. In spite of the fact the Russian forces were many times superior in number, the German Sixth Army succeeded in containing the thrust in the depth of its sector and in forming new fronts. Even after a double envelopment by far superior tank forces (nine tank corps), the Russians, after encircling the German Sixth Army in Bessarabia, did not succeed in blocking the road over the Transylvanian Alps against the remnants of the Sixth and Eighth Armies. In the tank battle of Debrecen (summer 1944), too, Russian tanks and motorized units split up in such a manner, without being concentrated, that weak German panzer divisions succeeded not only in preventing a break-through but also in throwing the Russians back again toward Debrecen. The leadership of these large, strategic armored forces was inadequate. In this instance only the enemy's enormous numerical superiority, and his mobility, brought him local successes.

Even in the last months of the war the Russians committed blunders in the command of their armored forces. They continued either to advance timidly when there was scarcely any resistance left, or else they carried out deep, isolated tank thrusts which the infantry was unable to follow and which, consequently, could not lead to permanent success. Russian armored forces always incurred severe losses wherever they encountered German armor still organized in units of any appreciable strength. Thus, as late as April 1945, the battle-weary German 6th Panzer Division succeeded, in what was probably the last tank battle, in repulsing vastly superior Russian tank forces in the plains of the lower March River, and in knocking out 60 tanks.

If the Russian tank forces with their vastly superior numbers had had proper leadership, the Russians would have been able to bring about the end of the war at a much earlier stage.

Chapter 10

Defense

I. General

There are two conspicuous characteristics of the Russian sold both of which are inherent in the Russian people, both of which w in evidence during the course of the two world wars: stubborn and tenacity in the defense, inflexibility and little adaptability the attack.

During World War I the power of resistence of the Russian sol was gradually paralyzed because of a lack of heavy weapons, the gr inferiority of Russian artillery, the almost complete lack of airc and because the morale of the Russian Army was undermined m and more as time went on. As early as 1915 Russian units left th trenches at the onset of German attacks, came toward the attack and surrendered. Such incidents, however, were not characteri of the Russian soldier, but rather an indication of conditions prev ing at that time. Elite units, such as Guards, and ably comman troops defended themselves with extreme doggedness even in Wo War I.

During the first phase of World War II there were also numer examples of Russian soldiers showing but little power of resist throwing away rifles, and surrendering or deserting by the thousa This, however, occurred only in great battles of encirclement wh the Russian soldier became demoralized by Stuka attacks and he concentrated artillery fire and realized the impossibility of contin the battle successfully. In general, in this war, firm leadership, g equipment, emphasis on patriotism, and the fear—stimulated propaganda—of falling into enemy hands, resulted in a tenacity defense which made German attacks without tanks, despite artil and air support, extremely costly or even futile. This power of Russian soldier to resist increased during the course of the war direct ratio to the decrease of the German power to attack. numerical superiority of the Russians became more and more cru their equipment continued to improve as compared with Ger equipment, and continuous military successes lifted their spiri confidence.

When on the defensive the Russian disappeared into the earth amazing speed. Within the shortest imaginable time he constr a system of field fortifications with numerous earthworks of all

...mines of various types and stringing barbed wire also took ...e time. The troops were deployed in depth; the Red com- ... frequently changed the strength of forces occupying a posi- ...n to the extent of varying the strength of the day and night ...and immediately prepared a careful plan of fire for all ... Except during great battles, defensive fire was maintained ...y the infantry heavy weapons, particularly by mortars which ...ons employed with considerable flexibility and in great num- ...r attacks against Russian positions, it was usually quite a ...fore effective defense fire of the Russian artillery began. But ...for a long interval the Russian artillery was unable to direct ...precisely and flexibly. The emphasis of the defense was on the ... weapons, including antitank and self-propelled assault guns, ...extensive mine laying.

...the German point of view, the defensive power of the Russian ...come too good if the attacker builds up a strong superiority ...d ground weapons and provides for sufficient depth of the ... force. Above all, the attacker must start determinedly ... know how to exploit each success quickly and flexibly in ...to achieve freedom of movement as rapidly as possible. The ... believe that a resourceful commander who knows how to ...vantage of the initiative will certainly be successful, because ...n command does not possess the necessary speed of action ...pected situations.

...World War II the Russian was a master of the defense. He ...d excellent results not only in construction of positions, but ...in camouflage and in the construction of dummy installations. ...rupulous use especially of the civilian population (including ...and children), he created well-developed zones in depth. In ...rain he dug wide and deep antitank ditches, often many miles ... Mine fields, wire obstacles, entanglements, and other obstacles ...immediately set up everywhere. If, because of the nature of ..., he expected tank attacks, the enemy developed points of main ... He was very adept at using villages as strong points. ...ever he could, he set up flanking weapons. He conducted his ...defense in a mobile manner, but within his defense trenches. ...considerable use of roving guns. He accomplished surprise ...tly with heavy mortars and numerous multibarreled rocket ...ors. He made little use of methodical artillery harassing fire. ...loss of parts of a position, reserves for a counterthrust were ...quickly at hand. Counterthrusts and counterattacks were in ...tances supported by tanks. The Russian did not often con- ...terattacks that were based on a preconceived plan since, from ...point of leadership, they were too difficult for him. From

1943 on, he strengthened his defense by mass employment of antiaircraft guns and flame throwers in so-called antitank gun fronts, which were superbly camouflaged and dangerous for tank attacks. Daytime observation was made difficult, because he showed almost no movement. In general, one might say that the Russian undertook his defense in open terrain, as well as wooded areas, according to principles rigidly drilled into the soldiers, and that he showed little imagination in developing new methods of battle. He relied, in attack as well as in defense, on reckless employment of manpower.

Another peculiarity to be mentioned is the fact that the Russian proved himself to be very well disciplined in opening fire. He waited calmly until the Germans had approached to a favorable range, and then he opened surprise fire. German combat reconnaissance always had to be on the lookout to avoid unnecessary losses. The Russian sniper battalions particularly excelled in fire discipline.

In 1941 the Russians also supported defense action in the Parpach position in the Crimea very adroitly and effectively from the sea by artillery flanking fire.

II. Use of Mines

The Russian made extensive use of mines. As a rule, a protective mine belt was to be found about 8 to 10 yards in front of the most forward trench. Terrain particularly favorable for an enemy approach likewise was heavily mined. The Russian preferred to employ wooden box mines which could not be detected by the standard mine detectors. In the depth of the battle position, mines were laid in unexpected places. In favorable terrain, antitank mines were numerous.

Difficulties in transporting Teller mines because of the lack of transport space were solved in a very primitive manner. When marching up to the front as relief, every man had to carry two antitank mines. At the front, these mines were laid by the engineers according to a diagrammed mine plan.

In 1944–45 the Russians, while on the move, also scattered mines around points of main effort in order to block tank attacks. In the southern Ukraine, following a successful tank thrust, the Russians immediately protected the terrain they had gained with a belt of antitank mines blocking all roads and approaches. On 1 day alone, 20,000 such mines were laid. German counterattacks ground to a halt and collapsed in mine fields of that type.

The Russian cleared mines in front of German obstacles during the night, and used them for his own purposes. Later on, the Germans laid mine fields only behind their own front, at points at which a tank break-through or an enemy offensive was to be expected.

When the Russian intended to give up a previously defended zone, he used many tricks. For example, he attached demolition charges with push-pull igniters to abandoned field kitchens, weapons, corpses, and tombstones; he connected explosive charges to doors, windows, or stoves in the winter; he installed pressure mines under stairs and floors, and booby-trapped abandoned trucks and other equipment.

When the Germans took Kiev and Vyborg in 1941, and Sevastopol in 1942, the Russian used remote (radio) control mines to blow up entire blocks of houses as soon as anyone entered. This type of remote control ignition seemed to be the most effective solution to the problem. The apparatus consisted of three parts, each of which was not much larger than a full brief case. It was easy to move, could easily be built into a hidden spot, and was at first hard to find. Built-in safety devices prevented an accidental or untimely detonation. The ignition apparatus included a clock, which ran only on a certain signal for a certain length of time, and permitted detonation only during certain minutes. There was, furthermore, a code which, when given at a certain speed, was the sole means for setting off the mines. The ticking of the clocks, however, could be heard with sensitive sound detectors and often led to discovery.

During the autumn offensive in 1941 against Moscow, the Russian employed so-called mine dogs for destroying German tanks. In the manner of pack animals, medium-sized dogs carried demolition charges which were connected to a spindle fastened to the dog's back. The dogs were trained to hide under approaching tanks. In so doing, the animal inadvertently brought the upright spindle which was about 6 inches long into contact with the belly of the tank and set off the charge.

News of this insidious improvisation caused some alarm in the German panzer units and made them fire at all approaching dogs on sight. So far, there is no evidence of any case where a German tank was destroyed by a mine dog. On the other hand, it was reported that several mine dogs fleeing from the fire of German tanks sought protection underneath Russian tanks which promptly blew up. One thing is certain: the specter of the mine dogs ceased just as abruptly as it had begun.

III. Conduct of Battle

The Russian defended every inch of his soil with incredible tenacity. At the beginning of the war he was conversant only with long defense lines, which he strengthened by employing an amazing number of personnel for digging trenches. Artillery confined its activities to minor fire concentrations. However, it proved to be more mobile than the infantry and employed many roving guns which

sometimes became very annoying to the Germans, since they fired only a short time from one position and then reappeared elsewhere. The Russian required a long period of time to bring effective fire to bear against an attack already in progress.

In 1943 new methods of tank and antitank warfare were introduced, though the methods of the infantry remained the same. Heavy machine guns and dug-in tanks frequently were encountered deep in the battle position. The latter were particularly dangerous because they were well armored and difficult to hit. In sectors in which the terrain was passable for tanks, antitank gun fronts would be set up in nearly all instances. They were developed to extraordinary strength and foiled many a German armored attack. They were also used against infantry, in which case they fired high-explosive shells.

In most cases, tank counterattacks without infantry support were certain to fall victim to German antitank defense. Infantry counterattacks were infrequent and generally too late. For the rest, no important changes took place in Russian defense methods up to the end of the war. The multibarrelled rocket projectors, which the Russians employed more and more, certainly were very effective psychologically but their physical effect was much less impressive. The most dangerous weapons continued to be the medium and heavy mortars, particularly after the heavy mortars were concentrated in battalions in 1944.

Areas of great importance were surrounded with heavy fortifications. For instance, the German armored units before Leningrad encountered fortification systems up to 6 miles in depth, including innumerable earth and concrete bunkers with built-in guns and other heavy weapons. There were even concrete pillboxes with disappearing armored cupolas for artillery and machine guns. They were constructed in the rear area from standard concrete forms, assembled at the front, and equipped with the armored cupolas. The cupolas were raised and lowered by wooden levers, which had to be operated manually by the pillbox crew. A speedy elimination of these concrete pillboxes with the means available in mobile warfare was difficult.

The forward edge of such a defense system was generally situated behind an antitank ditch several miles long and up to 20 feet wide and 12 feet deep. Embedded in the rear wall of this ditch were dugouts housing the riflemen with their defense weapons. A second and third antitank ditch frequently would be located in the depth of the system, and connected by a cross ditch so as to prevent enemy tanks that had penetrated the position from rolling it up. A machine-gun or antitank bunker in every bend of the antitank ditch afforded flank protection. It was not unusual to encounter dammed-up watercourses close to the fortified position. They were up to a hundred

yards wide and several yards deep, and presented an obstacle difficult to overcome. The Russians eliminated all favorable approaches to their front (forests, underbrush, tall grain fields, etc.) by laying extensive mine fields.

Outposts were located ahead of the fortified position wherever possible. Such outposts always had engineers attached whose mission it was to block routes of approach with mines or other obstacles.

The area of Krasnogvardeysk, south of Leningrad (Map 8), had been developed according to the above-mentioned principles into an outlying fortress. During early September 1941, it presented great difficulties to the advance of several German corps. Krasnogvardeysk blocked all highways and railroads leading to Leningrad from the south, thus constituting a main bulwark of Russian resistance. The Russians defended it persistently. Repeated attacks by several infantry divisions were repulsed. Only in the course of a general attack on the Leningrad Line, and after bitter pillbox fighting in the area immediately surrounding Krasnogvardeysk, was that town finally taken from the rear by a carefully prepared surprise breakthrough to the west of it. This typical example of the Russian method of defending a methodically fortified zone, and its capture by an adroitly led attack, will be discussed in detail in the following paragraphs.

The defense system of Krasnogvardeysk had been prepared long in advance and consisted of an outer belt of concrete and earth bunkers, with numerous intermediate installations which were interconnected by trench systems that could easily be defended. There were tank-proof watercourses or swamps almost everywhere in front of the outer defense belt. Where this natural protection was lacking, wide antitank ditches had been dug.

At a distance of 1,000 to 3,000 yards behind the outer defense belt there was an inner one consisting of a heavily fortified position encircling the periphery of the town. Just north of the town ran the continuous Leningrad Line, with which the defense system of Krasnogvardeysk was integrated. It constituted, simultaneously, the rear protection of the town and the covering position in case the town should have to be evacuated. Beyond the open, elevated terrain immediately west of Krasnogvardeysk lay an extensive forest zone. Within that zone, a few hundred yards from its eastern edge, ran the western front of the outer defense belt. At that point it consisted of wood and earth bunkers, trenches, and strong points—all approaches to which were barricaded by extensive mine fields, abatis, and multiple rows of barbed wire. Located from 2 to 3 miles farther west were mobile security detachments. Attached to these were engineer units used to lay scattered mines.

The cornerstone of this position was the heavily fortified and mined village of Salyzy, located at the southern end of the forest zone. It covered a road leading to Krasnogvardeysk from the west, and another one which branched off the former to the north within Salyzy. The later road served as supply route for all the troops situated west of it in the forest position. It crossed the dammed-up Ishora River via a bridge located in front of the Leningrad Line, traversing the line in a northwesterly direction. At that point the line consisted of four trench systems, one behind the other, with numerous machine-gun, antitank-gun, and artillery bunkers.

The German 6th Panzer Division, advancing on Krasnogvardeysk from the west via Salyzy, had the mission of breaking through the Leningrad Line in the above-described area, and attacking Krasnogvardeysk from the rear. Following a plan of attack based on precise aerial photos, the division decided to push with concentrated force through the outer defense belt at Salyzy, to follow through with a northward thrust and break through the Leningrad Line, and then to roll up the later to the east. The main body of the division attacked on the road and along the edge of the forest running parallel to it, took the antitank ditch after a brief engagement, and, during the noon hours, also captured the village of Salyzy after having stormed a large number of bunkers. A bunker at the edge of the forest continued to offer resistance until late afternoon.

Immediately after breaking into the village, the armored elements of the division, supported by an artillery battalion, advanced through the rear of the enemy-occupied forest position against the Leningrad Line. Under cover of tank fire, the engineers took the undamaged bridge in a *coup de main* and removed prepared demolition charges. About 4 miles north of Salyzy, panzer grenadiers (armored infantry) following them penetrated the antitank ditch, which began at the bridge and ran at a right angle to the front, and formed a bridgehead. During the evening the main body of the division cleared the surrounding forests of Red forces and, with a front turned 90°, assembled in the woods for a northward thrust to join the forces at the bridgehead, which meanwhile had been cut off by the enemy. On the evening of the same day a German panzer grenadier battalion succeeded in breaking through the inner defense ring located east of Salyzy behind a river arm, in the area of the neighboring SS Police Division, which had been stalled along its entire front. The bridgehead thus established by the battalion opened a gateway to Krasnogvardeysk for the SS Police Division.

On the second day of attack the bulk of the 6th Panzer Division advanced along the road to the armored units in the northern bridgehead. Some of its elements mopped up enemy forces on the plateau

west of Krasnogvardeysk, while others rolled up the Russian forest position which was pinning down a unit that had been detached as a flank guard on the previous day. During the forenoon the entire attack area south of the Leningrad Line was cleared of the enemy. Along the northern wing of the position on the forest edge alone, 40,000 Russian mines were picked up and disarmed. Then, battalion after battalion was pushed through the bridgehead into the 2-mile-long antitank ditch which ran up to a forest area. These battalions were pushed so far to the north that the four parallel defense systems of the Leningrad Line could be rolled up simultaneously from the flank by one battalion each. A desperate enemy attempt to repel the advance of the battalions and tanks by a cavalry attack was easily foiled. The antitank ditch, 4 yards wide and deep, had made it possible to change the attack front of the entire division again by 90° at one stroke. Under cover of flank and rear protection, bunker after bunker and strong point after strong point was now blasted by Stukas, medium artillery, antitank and antiaircraft guns, and captured; step by step the trenches and nests of resistance were cleaned out. All the German artillery was still in the old front south of the Leningrad Line, and its fire thus formed a complete flanking curtain in front of the attacking battalions.

The railroad running through the attack area was reached on the second day of battle, and the Krasnogvardeysk–Leningrad highway on the third day. There, the German forces took a group of artillery pillboxes equipped with disappearing armored cupolas. At that point the division stood directly in the rear of the town. The enemy, forced to retreat hurriedly, had only one side road available for a withdrawal, and that road lay under the effective artillery fire of the panzer division. With serious losses, the Russian divisions poured back over this road and the adjoining terrain. The attempt of the motorized medium artillery, the first of the Red forces to disengage, to escape on the wide asphalt road via Pushkin, failed. The road was already blocked by German armor. All the Russian artillery, as well as all other motor vehicles, was set afire by German armor when it attempted to break through at this point. During the following night the Russians, although badly mauled, managed to evacuate the town and escape. They then reestablished themselves with strong rear guards on high terrain between Krasnogvardeysk and Pushkin.

The next day, pursuing German infantry divisions bogged down before the heavily fortified positions. Here the enemy had employed the most modern system of field fortifications ever encountered on the Eastern Front. All of the fortification installations were underground. The defense was carried out in subterranean passages which were established along terrain steps and were equipped with well-

camouflaged embrasures. The heavy weapons likewise were in subterranean emplacements which were invisible from the outside. There were also subterranean rooms quartering 10 to 20 men each, ammunition dumps, and medical and supply installations. All installations were interconnected by underground communication passages. The entrances were situated several hundred yards farther to the rear, well camouflaged by shrubbery and groups of trees, and protected by open squad trenches and several standard bunkers which could only be recognized from nearby. Neither the best ground nor air reconnaissance could spot this fortification system even at close range. Not even after its guns had opened fire could it be located, as a result of which it proved very difficult to neutralize. All frontal assaults of the infantry were unsuccessful.

Not until 2 days later was it possible to clarify the situation and to capture the position. By that time the 6th Panzer Division, committed as an encircling force maneuvering via Posyolok Taytsy, was pivoting into the rear of the Russian fortifications. An odd coincidence played into the hands of the division. The previous evening strong reconnaissance patrols had advanced into the high terrain. Suddenly encountering the rearmost outlying bunker of the position, the patrols took it by storm without orders. Among the captured garrison was a Russian military engineer, the builder of this fortification system. With him, the plans of all the installations fell into German hands, and it was easy to plan the attack for the next day.

However, the attack of the lead-off panzer grenadier regiment had hardly begun when a new difficulty arose. The Russian had recognized the danger to his frontally impregnable position, and launched an attack from Pushkin against the rear of the 6th Panzer Division. A long column of tanks, the end of which could not even be surmized in the dust, rolled against the German rear guard unit. The first of the Russian tanks had already passed a narrow strip between swamps and turned against the defended elevations. However, except for one 88-mm. Flak battery and the antitank guns of the rear guard panzer grenadier battalion, the German division had at that moment only one panzer battalion with light Czech tanks available for its defense. The heavy Flak guns were already thundering. Flames from tanks that had sustained hits rose straight toward the sky. The vanguard of Red tanks consisting of 54 KV1's spread out, but kept moving ahead. Suddenly it was attacked and destroyed from very close range by a hail of fire from the tank destroyer battalion which had just arrived with 27 heavy antitank guns. Fourteen columns of black smoke announced to the main body of the enemy the destruction of his vanguard. Thereupon the main body suddenly stopped and no longer dared to pass the swamp narrow. Rear elements fanned out and disappeared

into the adjoining terrain. Heavy tank fighting indicated that the German panzer regiment, which had been summoned by radio, had gone into action. Soon the din increased. The panzer regiments of the neighboring 1st and 8th Panzer Divisions which had also been summoned attacked the flank and rear of the Red forces. The Russian realized his precarious situation and felt himself no longer equal to the task. His losses and his retrograde movements bore evidence to that fact. Even the heavy tanks, only 14 of which had been reached and destroyed by the heavy Flak guns, turned and retreated. The enemy had avoided a showdown. The threat to the rear of the panzer division had thus been eliminated.

In the meantime, however, the German panzer grenadier attack, supported by a panzer battalion, continued according to plan. In heavy fighting, the bunkers and squad trenches which protected the enemy's rear were taken one by one, and the entrances to the subterranean defense system reached. During the fighting for the first entrance, the crew resisted from an inner compartment with fire and hand grenades. In this action three Russian medical corps women in uniform, who defended the entrance with hand grenades, were killed. When their bodies were removed, several hand grenades were found on them.

Mopping up the subterranean passages was time-consuming and difficult. It had to be carried out by specially trained shock troops with hand grenades and machine pistols. German attempts to clear out the strong bunker crews led to bitter underground hand-to-hand fighting with heavy losses on both sides. The enemy defended himself to the utmost. The attack stalled. Only after engineer demolition teams had succeeded in determining the location of the subterranean bunkers by noting the sparser growth of grass above them, could these bunkers be blown up by heavy demolition charges from above, and taken. But the closer the shock troops came to the front position of the enemy's defense system, the more serious became the losses. The engineer demolition teams and all the other units were advancing above the Russian defense system, into the heavy artillery fire supporting the frontally attacking German infantry divisions of the neighboring army. Only when roundabout telephone communications had been established, and the devastating fire ordered to cease, was it possible to take the entire subterranean defense system. A junction was then effected with the infantry on the other side. Subsequently, German forces also occupied Pushkin.

With that, the most tenacious Russian defensive battles of 1941, between Krasnogvardeysk and Leningrad, came to an end. Only the flexible leadership of battle-tested armored forces, attacking with elan, made it possible to overcome the defense zones which had been set up

in an all-out effort of the latest Russian defense technique. Within a week the German 6th Panzer Division had had to break through and roll up 12 positions, repel several counterattacks, and take more than 300 heavily fortified bunkers.

Equally instructive was the Russian conduct of battle in the defense against the German pincers attack (Operation ZITADELLE) on Kursk in July 1943. The exhaustion on both sides after the preceding long winter battles led, at this sector of the front, to a pause of 3 months which both opponents used to replenish their forces and to prepare for Operation ZITADELLE. The Russians expected the attack precisely at the location and in the manner in which it was undertaken, and prepared their defense accordingly.

Behind the most endangered sectors, opposite Byelgorod and Orel, they constructed defense systems of hitherto unknown depth, and strengthened them with all kinds of obstacles. To be prepared against surprise armored thrusts, all points susceptible to penetration were safeguarded up to a depth of 30 miles by fully manned antitank gun fronts, antitank ditches, mine fields, and tanks in emplacements, in such numbers and strength that to overcome them would have called for great sacrifices and much time. Behind the pressure points north of Byelgorod and south of Kursk, sufficient local forces stood ready everywhere. Noteworthy were the numerous alternate firing positions, and the fact that the bulk of the numerous Russian artillery pieces were kept as far to the rear as their maximum range allowed, so as to escape counterbattery fire from German heavy howitzer batteries and to be able, in case of reverses, to support the infantry as long as possible. The Russian batteries preferred firing positions in forests, or in orchards adjacent to inhabited localities. For mobile operations, the Russians very adroitly employed multibarrelled rocket projectors. Strong strategic reserves were assembled farther east, in the region of the Oskol River, in such a manner that after the attacking German divisions had exhausted themselves in the above-mentioned defense system, the reserves could launch a counterattack, or, at worst, contain an enemy break-through. In the bulge extending far to the west, however, the enemy had stationed only weak and inferior forces, which were not backed by any deep defense system. During the long waiting period each side learned about the other's situation and intentions down to the last details. The Russians, for instance, broadcast to the German lines by loud-speaker the secret day and hour of attack well in advance, and in the same manner announced two postponements of the offensive. Nevertheless, the German attack was carried out at the precise point at which the Russians expected it. As anticipated, it did not develop into a dynamic offensive, but became a slow wrestling match with an enemy firmly

clinging to a maze of trenches and bunkers—an enemy who, unshaken by preparatory fire, offered dogged resistance. Many positions could only be taken after prolonged hand grenade duels. The Russians employed stronger tank forces only against what they guessed to be the weakest point in the German attack wedge—the flank of XI Infantry Corps which attacked on the right wing. Every one of these counterattacks was repulsed.

On the very first day of the attack, 5 July 1943, several German divisions each sustained losses up to 1,000 dead and wounded. The German armor, too, suffered substantial losses each day from the strong antitank defenses and mine fields. This, as well as the divergent directions of thrust of the various corps, visibly diminished the momentum of the German attack. When, after about 2 weeks of bloody fighting, there was no longer any hope of reaching the desired objectives, and when German forces even began to meet reverses in the Orel area, the attack was called off, and previous territorial gains were relinquished. By excellent organization of defenses and adroit conduct of battle, the Russians had brought about the collapse of the German offensive. Shortly thereafter they launched a counteroffensive with fresh reserves and effected a major break-through.

Conditions were entirely different for the Russians in their defense against the German relief thrust on Stalingrad in December 1942. (Map 9) Here, there existed only temporary field positions, and the defense had to be conducted in a mobile manner. At first the Russians pushed a cavalry corps, strengthened by armor and camel troops, forward along the Don to the Kurmoyarskiy Aksay River for reconnaissance and for screening the movements of their infantry and tank forces assembling in the rear.

The German 6th Panzer Division was 10 to 20 percent overstrength and had to conduct the main thrust. When its leading elements arrived, the vanguard of the Red calvary corps was just moving into Kotelnikovo (about 26 November 1942). It was driven back, and the assembly of German forces continued. The attempt to take Kotelnikovo in an assault by the entire cavalry corps on 5 and 6 December 1942, ended in a smashing defeat of the corps at Pokhlebin. Meanwhile, the enemy cautiously advanced two rather weak infantry divisions along both sides of the railroad onto the elevations north of the city, and pushed back several outposts. After the bitter experience of Pokhlebin, however, he did not dare attack Kotelnikovo again. He assembled his main force, the Third Tank Army and additional infantry forces, between the Aksay River and the Mishkova River sector. His entire defense forces were drawn up in three echelons, one behind the other, 20 miles in width and 45 miles in depth. The impression was gained by the Germans that the enemy would move up

under the protection of his advance infantry and cavalry divisions, and then, with his entire tank army, attack the 6th Panzer Division which was marching up alone, in order to destroy it in the wide forefield of Stalingrad before it reached the city. The move, however, did not materialize. On that occasion the Russians either missed a chance, or else did as yet not feel strong enough to attack the division, which was equipped with 200 tanks and self-propelled assault guns as well as a large number of antitank weapons. Neither did he act to save his reinforced cavalry corps from destruction on 5 and 6 December, and also looked on idly on 12 December while the beginning of the relief thrust of the German 6th Panzer Division rolled over his advance infantry divisions and scattered them. The northernmost of the two divisions here lost its entire artillery. The weak remnants of the Russian cavalry corps were also caught on the fringes of the mighty assault and so badly mauled that they played no further part in the course of the offensive. Thus the 6th Panzer Division, without protection on its northern flank, was able to cross the Aksay River as early as the third day. Its southern wing was protected by the 23d Panzer Division (in regimental strength with 15 to 20 tanks), which followed in echelons.

The crossing of the Aksay River met only weak resistance from advance elements of a Russian mechanized corps, which was soon overcome. In an immediate follow-up thrust by all German armored units, Verkhniy-Kumskiy, the key point of the assembly area of the Russian Third Tank Army, was taken. Not till then were the enemy tanks stirred to action, but now they displayed very spirited activity. Speed was imperative. Therefore, the Russian commander was compelled to radio all his orders and reports in the clear. Because the Russians were forced to put their cards on the table, the German forces, although numerically far inferior, were able during the ensuing several days of bitter tank fighting to attack Russian elements in lightning moves and beat them decisively before they could receive help. In the melee that followed, the Russians occasionally succeeded in concentrating greatly superior forces which threatened to become dangerous to the division. The German armored forces then immediately withdrew, only to attack the Reds from the rear again the moment an opportunity presented itself.

Both sides made large-scale shifts under cover of darkness. By lightning-like feints and changes of direction, it was repeatedly possible for the Germans to attack strong Red tank concentrations simultaneously from all sides in the larger hollows of the hilly terrain, and to destroy them to the last tank. In this manner a number of so-called tank cemeteries originated, where from 50 to 80 knocked-out tanks, mostly T34's, stood in clusters within a small area. German bomber wings repeatedly bombed them by mistake. Neither German nor

Russian aircraft could take any part in the seesaw tank battles, since the opposing tanks were frequently so intermingled that they could not be differentiated. Although air activity on both sides was very lively, it was forced to limit itself to attacking motor pools and supply lines. The air arm was of no decisive importance.

While the tank battle north of the Aksay River was still in progress, Russian tank and motorized brigades crossed the river in a southerly direction and attempted to cut off the bridge crossing, which was strongly held on both sides of the river. This had to be avoided under all circumstances, but without depleting the German armored forces then engaged in crucial battles. Soon the bridgehead was surrounded. Although more than a dozen Russian tanks were knocked out, just as many surviving tanks overran the entrenched German infantry and penetrated to a rather large village located in the center of the bridgehead and defended by the German 57th Armored Engineer Battalion. Not a single engineer or rifleman deserted his post. Each man became a tank buster. Just as fast as Russian tanks entered the village, they burst into flames. Not one escaped. Three times the Russian repeated this assault, and three times he was repulsed. Then a reinforced infantry regiment attacked him from the rear, scattered the entire force, and knocked out 14 tanks. That opened the route of advance again and assured the free flow of supplies across the bridge.

When strong Russian motorized infantry with numerous antitank weapons entered the battle at Verkhniy-Kumskiy, the German armored infantry forces were tied down supporting their neighbor and other forces engaged at the Aksay River, leaving the German armored units so severely restricted in their freedom of movement that they had to be withdrawn to the Aksay River. The Russian, however, had suffered such heavy tank losses that he did not dare risk the rest of his tanks in a pursuit. He contented himself with defending a long ridge south of Verkhniy-Kumskiy. The premature attempt, ordered by a higher command, to roll up this ridge position from the flank with the combined armored elements of the 6th and 23d Panzer Divisions failed. Its failure was caused by lack of sufficient infantry to silence the numerous antitank guns and rifles which were entrenched in deep antitank pits and well camouflaged by high steppe grass. Although it was perfectly possible to roll from one end of the ridge to othe other, the Russian motorized riflemen popped up again afterwards like jack-in-the-boxes and, with their numerous antitank rifles, knocked out many an armored vehicle. The combined German armored force suffered considerable losses and had to be recalled in the evening without having accomplished its mission.

Not until 2 days later did a planned attack of the entire 6th Panzer Division succeed in taking the position and cleaning it out. In the

subsequent night attack the German armored infantry recaptured the stubbornly defended village of Verkniy-Kumskiy, destroyed a number of emplaced tanks, numerous antitank guns, and over 100 antitank rifles. At dawn of the following day the elevated position north of the village was taken in cooperation with the newly arrived 17th Panzer Division which had only the combat strength of a reinforced battalion. The 11th Panzer Regiment, which up to this time had been held in reserve, was employed in the pursuit and inflicted heavy losses upon the Russian who was retreating through a single defile.

In the midst of the pursuit, however, the entire 6th Panzer Division had to turn to the east to support the neighboring 23d Panzer Division on the right since it was being pushed back beyond the Aksay River by a newly arrived Russian rifle corps. The further pursuit toward the north had to be left to the weak 17th Panzer Division, which lacked sufficient driving force to destroy the beaten Russian forces.

The turning of the 6th Panzer Division against the rear of the new enemy had decisively changed the situation in the 23d Panzer Division. The Russian corps immediately broke off its attack and hastily retreated eastward in order to escape the deadly blow that would have been dealt it very soon, had it remained. The Red tanks and antitank gun fronts thrown against the German 6th Panzer Division had been scattered before, and German armor was about to cut off the Russian escape route. At this critical moment, too, the Russian corps commander radioed his urgent orders in the clear.

But the objective of the German panzer division was Stalingrad, not the pursuit of a corps in a different direction. As soon as the 23d Panzer Division, relieved of enemy pressure, could again advance, pursuit of the corps was halted. The 6th Panzer Division then turned north and, after hard fighting, reached the Mishkova River sector at Bolshaya Vasilyevka. At that point the Stalingrad garrison was supposed to make contact with the division. Two bridgeheads were quickly formed, the village taken, and the entire division concentrated in a small area for mobile defense. It had already covered two-thirds of the distance, and stood 30 miles from Stalingrad; the flash of signal rockets from the city could be observed at night. It remains a puzzle why the German Sixth Army (Field Marshal Paulus) did not break out at that time (20 December).

In forced marches the Russian brought up additional strong forces from the Stalingrad front and the Volga in order to support the beaten Third Tank Army and throw back the German forces. Since he no longer had sufficient tank forces available for this purpose, he hoped to overwhelm and destroy them with the newly formed infantry main-attack army. The Red riflemen surged forward in multitudes

never before encountered. Attack wave followed attack wave without regard for losses. Each was annihilated by a terrific hail of fire without gaining so much as a foot of ground. Therefore, the Russians went around the two flanks of the German division in order to encircle it. In the course of this maneuver they came between the German artillery position and the panzer regiment. Firing from all barrels, 150 tanks and self-propelled assault guns attacked the Russian masses from the rear when they tried to escape the fire from the artillery. In their desperate situation many Russians threw down their weapons and surrendered. Succeeding elements flowed back; Red forces which had penetrated into the village were driven out again by a counterthrust of the German infantry, and Russian tanks which had broken through were knocked out. The Russian mass assault had collapsed.

On 22 December the German 6th Panzer Division had regained its freedom of movement. By a further forward thrust of 18 miles on 24 December, the division was to help the encircled Sixth Army in breaking out of Stalingrad. That operation, however, never materialized, because the division suddenly had to be withdrawn on 23 December and transferred to the area north of the lower Don (Morosovskaya) to bolster the collapsed Chir front. This move definitely sealed the doom of the German forces at Stalingrad. The remaining two weak panzer divisions, the 17th and 23d, were not even sufficient to make a stand against the Russian forces, let alone repulse them. But also the enemy was so weakened by his losses, which included more than 400 tanks, that he was unable to make a quick thrust against Rostov, an action which would have cut off the entire Caucasus front.

Here is another example that confirms very emphatically the characteristic fighting method of the Russians: not great achievements by small units with clever leadership, but by sacrifices of masses. Only when the Russians attacked with a tenfold to twentyfold superiority could they achieve temporary successes. In the assault, however, the individual performance of the German soldier triumphed over the masses.

The Russian high command had assigned more than sufficient forces to prevent the relief (five corps and one main-attack army against one German panzer corps). The Russian corps were organized very effectively, but were poorly led. If properly led, these superior forces would have sufficed to defeat the weak German relief force before it could launch its attack. At the very latest, the combined Russian corps should have attacked and beaten this German corps which was making an unsupported forward thrust, when it crossed the Aksay River. But the commitment in detail of the Rus-

sian forces enabled the German units to attack the individual Ru corps by surprise and defeat them one after another. During last days, the Russians hastily formed a new main-attack army threw it against the German 6th Panzer Division in the Mis River sector in order to halt its further advance. This army sustained heavy losses, and would have been unable to prev further advance of the German armor. It had no effective support because the pivotal element in the whole struggle, the Ru Third Tank Army, had already been beaten. The Third Tank A was the most dangerous opponent on the route to Stalingrad. It more than twice the number of tanks the Germans had, and superior antitank weapons. Its motorized troops were well tr and fought with exemplary valor. But neither numerical super nor valor could make up for the mistakes of the intermedia lower commands. Only the repercussions of the great successes the Soviet Supreme Command was able to achieve on the Chir Don fronts caused the German relief thrust to fail.

An indirect but very significant role was also played by the A invasion of North Africa. The German armored forces statio France (the 6th, 7th, and 10th Panzer Divisions and the 1st, 2d, 3d SS Panzer Divisions) were among the crack troops of the Ge Army. They had been brought up to full effectiveness, but were transferred as a whole to the East for fear of an Allied landi southern France. Finally, after several days' hesitation, only 6th Panzer Division was transferred to the sector south of Stal The 7th Panzer Division followed at a later date, but arrived for the relief thrust. Its timely arrival would have been suffi carry the thrust through to its objective.

Chapter 11

Retreat and Delaying Engagements

ions of Russian fighting methods in retreat could be made during the first years of the war. When the Russians ated on a broad front, they reestablished their lines only d retreated a considerable distance. They marched very when retreating in extremely large numbers. Precisely it was important to pursue them energetically, and to opportunity for renewed resistance. The German con- ying action, with leapfrog commitment of forces in itions, was apparently not known to them; at least, this ting, requiring great mobility and competent leadership, by the Russians. The Russians always sought only complete solutions. When they decided to withdraw, they jump, and then immediately began an active defense When German armored forces which had broken through off the roads, the Russians disappeared into the terrain skill. In retreating, retiring from sight, and rapidly the Russians were past masters. Even large forces ed long distances over terrain without roads or paths. n Russian rifle regiments which had been thrown back mor crossing the border at Tauroggen, again opposed the division south of Leningrad, after a march of 500 miles.

e was of the essence, the Russians succeeded in carrying mbers of cattle, as well as a substantial amount of equip- supplies. They shot thousands of undesirable persons in countries before the retreat, and took other tens of thou- them. In retreating they did not hesitate to burn to the cities and towns of their own native land, if it seemed vantage was to be gained (scorched-earth policy). Thus, t of 1941, they almost completely destroyed the cities of molensk, and many others, leaving nothing of value to fall nds of the Germans and delaying their advance. All that r the Germans of the Russian collective farms, state farms, tor stations, and manufacturing plants of all kinds, were ruins. For that reason it even became difficult in some arter larger headquarters organizations to assure their ction.

ctics of stopping or slowing down the German offensive inated counterattacks have already been treated in the hapter.

Chapter 12

Combat Under Unusual Conditions

The Russians systematically exploited all difficulties which their country presented to the enemy. In villages, woods, and marshes, and in fog, rain, snow, and storm, the Russians combined the tricks of nature with their own innate cunning in order to do the greatest possible harm to the enemy.

I. Fighting in Towns and Villages

The Russians were very adept at preparing inhabited places for defense. In a short time, a village would be converted into a little fortress. Wooden houses had well-camouflaged gun ports almost flush with the floor, their interiors were reinforced with sandbags or earth, observation slots were put into roofs, and bunkers built into floors and connected with adjacent houses or outside defenses by narrow trenches. Although almost all inhabited places were crammed with troops, they seemed deserted to German reconaissance, since even water and food details were allowed to leave their shelters only after dark. The Russians blocked approach routes with well-camouflaged antitank guns or dug-in tanks. Wrecks of knocked-out tanks were specially favored for use as observation posts and as emplacements for heavy infantry weapons, and bunkers for living quarters were dug under them. It was Russian practice to allow the enemy to draw near, and then to fire at him unexpectedly. In order to prevent heavy losses of personnel and tanks, the Germans had to cover the outskirts of inhabited places with artillery, tanks, or heavy weapons during the approach of their troops. Fires resulted frequently, and in many instances consumed the whole village. When the front line neared a village, the inhabitants carried their possessions into outlying woods or bunkers for safekeeping. They did not take part in the fighting of the regular troops, but served as auxiliaries, building earthworks and passing on information. The Russian practice of raiding inhabited localities during mobile warfare, or converting them into strong points for defensive purposes, was responsible for the destruction of numerous populated places during combat.

Since the defenses on the outskirts of a locality were quickly eliminated by the above-mentioned German countermeasures, the Russians later led their main line of resistance right through the center of their villages, and left only a few security detachments on the outskirts

facing the enemy. Permanent structures destroyed by artillery fire or aerial bombs were utilized as defense points. The ruins hid weapons and served to strengthen the underlying bunkers. Even the heaviest shelling would not drive the Russians from such positions; they had to be dislodged with hand grenades or flame throwers. The Russians upon retreating frequently burned or blasted buildings suitable for housing command posts or other important military installations. Quite often, however, they left castles, former countryseats, and other spacious dwellings intact, after they had mined the walls in a completely conspicuous manner with delayed-action bombs, which were often set to explode several weeks later. These were meant to blow up entire German headquarters at one time. The possible presence of time-bombs in cities, railroad stations, bridges, and other important structures always had to be taken into account.

When the Russians were on the offensive, they tried to encircle fortified towns in order to bring about their fall through concentric advances. Only during major offensives would the advance forces bypass inhabited places in order to gain ground rapidly, leaving the job of mopping up to the reserves following behind. If the Russians were encircled, they defended themselves very stubbornly, capitulating only in rare cases. The large-scale battles of encirclement of 1941, when hundreds of thousands surrendered in hopeless situations after previous attempts to break out, were exceptions.

Fighting for the possession of villages played a still greater role in the winter. The villages blocked the few roads which had been cleared of snow, and offered warm quarters. Cleared roads and warm quarters are the two basic prerequisites for winter warfare. Therefore, inhabited localities retained their outstanding tactical importance even though they could easily be bypassed by ski troops even in deep snow. Experience had shown that ski and sleigh forces might seriously harass the enemy, but they would never be able to bring about major decisions.

The tactics of winter warfare therefore centered around contests for the possession of roads and inhabited places. In Russia, villages and roads were infinitely more important than they were on the rest of the Continent. In other German theaters of war any one particular road never became a crucial factor, since the well-developed road net always offered a choice of alternate routes. In the East, the possession of a single road often was a life or death matter for an entire army. To be sure, inhabited places were also tactically important in France and along the Mediterranean, and offered welcome shelter. Properly clothed, however, the troops were able to remain in the open for a long time without freezing, or even endangering their health—an impossibility in the East. The extreme tactical importance of inhabited

places during the 6 months of winter explains the fact that the Russians frequently would much rather destroy them than surrender them to the enemy.

II. Forest Fighting

The Russians favored forests for their approach marches and as assembly areas for an attack. They came and disappeared invisibly and noiselessly through the woods. Narrow strips of woodland leading to the outskirts of villages were used as concealed approaches by reconnaissance patrols. The woods also indicated the logical course to be followed for the forward assembly prior to an attack as well as for infiltrating into German positions. Outskirts of woods were a preferred jump-off position for the Soviet mass attacks. Wave upon wave would surge out of the forests. Undaunted by the losses that the German defensive fire inflicted on their ranks, the Russians continued the attack. Even small clearings were used for artillery firing positions. If necessary, the Russians would create such clearings by rapidly felling trees. Quickly and cleverly they constructed positions for heavy weapons and observation posts in trees, and so were able to lend effective support to their advancing infantry. Bringing up even medium artillery and tanks through almost impenetrable forests presented no problem to the Russians.

In June 1944, Russian tanks reached a trackless forest east of Lwow through a narrow gap in the front. The whole tank corps soon followed, although it was attacked from both flanks and heavily bombarded by artillery and rocket projectors. The Russians used their heavy KV1 and KV2 tanks as battering rams to crush the medium growth of timber. The attached engineers overcame some of the attendant difficulties by laying corduroy roads across the swamps, and the infantry and artillery were soon able to follow the tanks. Shortly before the Russian operation, the commanders of the German panzer divisions had come to the conclusion that this forest was impenetrable even for Russian tanks. The Russian advance over this hastily improvised road, constructed with the aid of the most primitive facilities, was, for a time, accompanied by the strains of band music!

In an attack across open terrain with only occasional patches of forest, the Russians endeavored to reach those patches in the shortest possible time. The Germans found that forests had the same magnetic attraction for the Russians as inhabited places. Whenever the Russians planned a river crossing, one could safely assume that it would take place where woods or inhabited localities reached down to the banks of the river.

When the Russians in the course of their great counteroffensive successfully effected a break-through 60 miles deep, west of Byelgorod on

5 August 1943, they seriously threatened the flanks and rear of XI Infantry Corps on the upper course of the Donets River. The Russians recognized the critical situation of the German corps and sought, by a thrust across the river, to cut its only route of retreat. In spite of heavy losses, the Russians managed to gain a foothold in a forest on the west bank of the Donets. On that occasion, a ruse paid the Russians handsome dividends. When the German local reserves launched a counterthrust, they suddenly faced a Russian battalion dressed in German uniforms, and immediately ceased firing. By the time the German troops became aware of their mistake, it was too late. The Russians took advantage of the resultant disorder, fell upon the deceived attackers, and took a large number of them prisoner. The Russians then entrenched themselves in a larger patch of woodland in order to continue their thrust from there. A counterattack, begun the next day and supported by the massed artillery of the German corps and a rocket projector regiment, succeeded in compressing the Russians into a small area, but not in driving them back across the river, although the concentrated drum fire killed three-quarters of their forces.

The innate aptitudes of the Russian soldier asserted themselves to an even greater degree in defensive actions fought in forests. The Russian command was very adept at choosing and fortifying forest positions in such a way that they became impregnable. On the edge of woods toward the enemy, the Russians left only outposts for guarding and screening the main line of resistance, which was withdrawn deep into the forest itself. That security line also formed the springboard and the support for reconnaissance, scouting, and other operations. The main line of resistance frequently ran parallel to the opposite edge of the woods and a few hundred yards inside the woods. Very extensive woods often concealed groups of bunkers in the central part. These bunkers, constituting an intermediate position, were to delay the advance of the enemy, deceive him as to the location of the main position, and serve as support for the outposts. The Russians also protected the exposed flanks of a forest position by groups of bunkers. Important approach routes were blocked by individual machine-gun or antitank-gun bunkers, echeloned in depth. The immediate vicinity of the bunkers was protected by mined entanglements of branches and abatis, as well as by snipers in trees. Furthermore, the Russians used to mine all bypasses and clearings in numerous places. These measures greatly delayed German progress through a forest, because the bunkers could be taken only after costly fighting, and because engineers had to be called upon for time-consuming mine-clearing operations. Important forward strong points in forests had facilities for all-around defense. A forester's house or a hamlet would often form the central point of the fortified position. A defense

trench surrounded by obstacles and mine fields completely encircled the position. The few sally ports were guarded by sentries and movable barriers. A ring of bunkers, connected with each other and with the fortress, enclosed the central point. The intermediate position was blocked by barbed wire, entanglements of branches, and mines. The previously described individual bunkers were placed along the approach routes.

An extensive system of bunker groups formed the battle position and made possible an unbroken defense of the front. In the battle position all the previously described defense expedients were found in even greater numbers. Entanglements of branches interwoven with barbed wire, and mined abatis to a depth of several hundred yards were no rarity. These obstacles prevented sudden thrusts along the roads. Wherever there might have been a possibility of bypassing these obstructions, one could be sure that mines or tank traps had been installed. In such cases the German troops would often end up in a swamp or an ambush. All bunkers and defense installations were so well camouflaged that they could never be discovered by aerial reconnaissance, and by ground reconnaissance only at very close range. Because of the system of advanced strong points and security positions, it was in many cases impossible for German scouting parties even to get close to the main defensive position. While reconnaissance in force by at least a reinforced battalion might succeed in breaking through the outer protective screen, it frequently would bog down at the supporting position of the Russian outposts. However, if the Russian gave way without offering much resistance, the utmost caution was indicated since a further advance was sure to end in a prepared ambush. In such cases, entire German companies repeatedly were wiped out, the prisoners being massacred.

After the capture of Sukhinichi in February 1942, the German 208th Infantry Division continued its northward thrust. The continuous threat from Red forces in a woodland, as well as raids on the supply road of the division, made it imperative that the woods be cleared of the enemy. According to reports from scouting parties, a small village occupied by a substantial number of Russians was located in the center of the woods. Since it was to be presumed that the raids were launched from that point, the division ordered the capture of the village. Half a battalion was assigned to the task. The force was partially equipped with snowshoes and reinforced by infantry heavy weapons which were taken along on sleds. The Germans advanced along the road leading from Sukhinichi to the village and, having arrived at a clearing in the woods—in the center of which lay the village—without being molested, surrounded the village. The attack met bitter resistance and failed. After having sustained heavy losses,

the half-battalion retreated along its approach route. Meanwhile, Russian troops had taken up positions along the road and fell upon the retreating Germans. Only remnants of the half-battalion reached their point of origin.

Strongly garrisoned Russian forest positions were difficult to attack and always cost many casualties. They were invulnerable to attacks by the Luftwaffe, German artillery, or armor. At best, tanks and self-propelled assault guns could be employed individually or in small groups, in which case they were very useful. Very rarely could strong positions be taken if they lay deep in an extensive forest or near its far edge. Frequently whole German divisions were pinned down before such positions until they could be relieved from their plight by an envelopment by other forces. For that reason, forward thrusts by strong forces were not led through woods but around them, wherever such a maneuver was possible.

In the latter half of August 1941, the German 6th Panzer Division was to begin a thrust toward Leningrad from the Porechye bridgehead on the Luga River. (Map 4) The bridgehead was completely surrounded by woods and the sector to be attacked lay in a medium-growth, partly marshy woods with thick underbrush. The sector was occupied by the 2d and 3d Russian Proletarian Divisions. The most advanced Russian position was located about 300 to 400 yards ahead of the German front. The Russian trenches were narrow and deep, and had no parapets. The excavated earth had been scattered in the surrounding rank marsh grass, and the trenches were so well camouflaged with branches that neither reconnaissance patrols nor aerial photography had been able to spot them during the preceding 4 weeks of fighting. The wire entanglements were no higher than the dense growth of grass hiding them. Single roads from the southwestern and northeastern ends of the bridgehead cut through the woods to a village beyond. The two roads were blocked by heavily wired abatis and mine fields. On the far edge of the woods a second position was located atop a sand dune, a third ran through the village, and a fourth lay behind the village. The second position was particularly well constructed. It consisted of a deep antitank ditch, in the front wall of which the Russian riflemen had entrenched themselves, and bunkers for heavy weapons had been installed.

The German attack was to be launched along the two above-mentioned roads. A reinforced armored infantry regiment, supported by strong artillery elements and a rocket projector (Werfer) battalion, advanced along each of these roads. Individual tanks were to support the engineers in the removal of the road blocks. In spite of very heavy fire concentrations on the projected points of penetration, the Russians could not be budged from the narrow, invisible zigzag

trenches. To be sure, the German tanks were able to reach the barriers, but the dismounted engineers were unable to remove the blocks in the defensive fire, which continued unabated. The infantry following up sought fruitlessly to find other weak spots in order to effect a break-through. Repulsed everywhere by the murderous defensive fire of an invisible enemy, it finally stopped, knee-deep in swampland, before the wire entanglements in front of the still unknown Russian position. Not until the following night did one German company succeed in crawling forward, man by man, through the deep-cut bed of a brook which was overgrown with grass and bushes, and in infiltrating through the entanglement. That particular point had not been attacked theretofore. Strong German reserves were immediately brought up. They widened the point of penetration, and cleared the trenches and strong points of the westerly sector after hours of hand-grenade fighting. The Soviets continued to maintain their position in the eastern sector. German forces could be directed against the rear of the enemy only after a thrust into the depth of the western sector had reached and rolled up the second position. After bitter hand-to-hand fighting the German forces were finally able to scatter the Russians also at that point, and to clear the road. Only then, after a 2-day battle which exacted a heavy toll of losses from both sides, could this invisible defensive system in the woods be surmounted.

III. Fighting Beside Rivers, Swamps, and Lakes

During the course of the war, the ability of the Russians to cross even the largest rivers was always a source of amazement to the Germans. When the German armies reached the Dnepr in the summer of 1941, the problems of surmounting the obstacle presented serious difficulties to the German command, since they had no previous conception of the size and the nature of the river. How quickly and easily this problem could be solved was demonstrated a few days later by the Russians. During the course of one night a cavalry corps crossed the river—using field expedients for ferrying men and equipment to the opposite bank, and swimming thousands of horses across—and penetrated deep into the lines of the surprised Germans.

Two years later the German armies retiring westward headed for this same sector of the Dnepr and had great difficulties in reaching and crossing it ahead of the Russians. By calling on all the forces and means at their disposal, the Germans had managed to occupy seven existing bridges in a sector 300 miles long, but were able to establish only one float bridge and one improvised ferry because of the scarcity of ferrying equipment that prevailed by that time. On the other hand even before the German troops arrived, the Russians, following in close pursuit, succeeded in dropping several thousand paratroops over a 200-mile-long part of the sector, in establishing small

bridgeheads at several places, and soon thereafter in building 57 bridges, 9 foot bridges, and other facilities for crossing the river. Thus, the Germans had a crossing over the Dnepr every 40 miles, the Russians one every 4 miles. At one ferrying point 25 miles downstream from Kremenchug, the Russians established a small bridgehead and proceeded to ferry tanks across the river on rafts, by day and night. Their operations continued even when they were shelled by German artillery, and some of the tank-laden rafts went to the bottom of the river.

The Russians also made extensive use of raft bridges built by their engineers. The German engineers first learned about these from the Russians and had to experiment in order to determine their load capacity. Raft bridges could be used only for crossing waters having a slow current. The raft bridge is built of tree trunks placed side by side and fastened to each other. Depending upon requirements, a second and even a third layer of logs is added, each layer being laid at right angles to the layer below. Planking, laid across the uppermost layer, serves as a roadway. The load capacity of the raft bridge can be adapted to meet existing requirements by varying the number of layers of logs. The Russians built bridges of this type ranging from a 5-ton bridge at Rogachev in 1941 to a railroad bridge of over 100-ton load capacity near Kiev in 1943. Just 4 days after taking Kiev, the Russians had established rail communications into the city over this heavy raft bridge across the Dnepr.

Swamps and lakes also presented no real obstacles to the Russians as was demonstrated during the battles on the Volkhov and the engagements on the Luga and Desna, as well as in many other swamp sectors. When, in February 1944, a yawning gap opened on the Pripyat River at the boundary between Army Group North Ukraine and Army Group Center, the Russians crossed this extensive marshy region during the muddy period with 14 divisions, and pushed toward Kowel. Several of these divisions turned south through Rowne to attack Lwow. Stopped near Dubno on the Ikwa River by the German Fourth Panzer Army, they vainly tried to take the few strongly manned crossings over the extensive swamps on both sides of the river. Nevertheless, one morning a Russian battalion appeared in the rear of Dubno. It was surrounded by German armor and captured. Interrogation of the prisoners revealed that during the night the Soviet riflemen had crawled on their bellies across the slightly frozen marsh, which was up to 600 yards wide and could not be crossed on foot, and arrived exhausted and covered with muck.

In September 1943, the German XI Infantry Corps stood on the Dnepr astride Kremenchug, and had to protect its right wing against the enemy who had broken through in the adjacent sector. A shallow lake, 2½ miles long and from 300 to 500 yards wide, facili-

tated the flank protection. The western bank was guarded by weak German forces. One night these forces were suddenly attacked and driven back by from 600 to 800 Russians. Under cover of darkness the Russians had waded across a shallow spot of the marshy lake without a stitch of clothing, and—equipped only with small arms and ammunition—had surprised the German security. Only quickly brought up mobile reserves were able to encircle the Russians and take them prisoner.

IV. Fighting in Darkness and Inclement Weather

The Russians used darkness and fog primarily for troop movements, preparations for attack, construction of field fortifications, and supply operations. Reconnaissance in force, and raids likewise, were usually carried out under cover of darkness or hazy weather. In these instances, the Russians proceeded with patience, cunning, and perseverance. Not infrequent were Russian night attacks in strength of up to a regiment.

In the Arctic, the Russians employed commando teams specially trained in Byelomorsk for night raids into the German rear area. Appropriate to the nature of their mission, these troops were equipped only with absolutely essential items. Minutely detailed orders took care of every phase of the undertaking, and were carried out methodically and to the letter. Here, too, the Russian proved himself a fearless fighter. As in other regions, attacks on strong points in the Arctic were broken off only when the Russian casualties amounted to many times the strength of the strong point complements.

A typical example of a planned night attack was that of a Siberian division against the German 112th Infantry Division southeast of Uzlovaya toward the end of November 1941. (Map 5) After it had finished unloading, the Siberian division advanced on the 112th Infantry Division early in the night. Having gained a substantial amount of territory to the north beyond Bogoroditsk in minor engagements during the previous day, the 112th Division had bivouacked for the night. About 20 tanks led the Siberian attack. The mere appearance by night of tanks in front of the lines of the 112th Division produced a severe shock. No means of defense were on hand at that time. Any defenses would have had only a local effect at night. When the attacking Siberians appeared behind the tanks, complete panic ensued. The elements of the 112th Division hit by the attack fell back several miles, close up to the northern outskirts of Bogoroditsk. Special steps had to be taken to restore control of the situation. The territorial gains of the Siberian division remained limited to a few miles; a large-scale exploitation of their success did not follow. The Russians probably had reached their objective and had not planned any further advance.

Night attacks on a major scale, however, remained the exception to the rule. The Russians undertook such attacks only when they had orders from a higher command, or when they failed to take an important objective in a day attack in spite of a mass commitment of men and equipment. Night attacks were generally acts of desperation, where everything was staked on one card.

During the polar winter only small-scale warfare was possible which, however, the Russians as well as the Germans waged zealously. Security and reconnaissance activity had to be greatly increased. Surprise attacks were always to be expected because it remained dark throughout the day. The generally known principles of defense against night operations held true under those conditions. Almost the only new feature was the fact that fighting was not limited to mere local actions, for raiding parties consisting of smaller units did not hesitate to thrust far into the depths of the enemy front (the Russians to the Turku- and Helsinki-Petsamo highway (Eismeerstrasse), the Germans to the Murmansk railroad). Both sides frequently employed specially trained troops in these operations. The Russians used troops trained in Byelomorsk; the German used special Finnish units.

Attempts to break out of pockets, such as took place in 1941 at Maloryta, Vyazma, Bryansk, and other encirclements, were another type of night surprise attack. Here, the Russians made no long preparations, but hurled themselves into the open without any definite plan. In tightly packed hordes they struck at whatever points they believed there was a chance to break through. At Maloryta the Russians, after a successful breakout of part of their forces, spent 36 hours encircling and storming a village still held by the Germans. This village was to the rear of the Russians, and by their pointless operation they lost the advantage of their nighttime breakout. Possession of the village would have been completely unimportant for the success of the breakout. Their orders, however, probably read that way.

Russian large-scale offensives always started by daylight. Usually the early morning hours were chosen. H Hour remained the same even if dense fog obscured everything all day long as, for instance, at the beginning of the second battle of East Prussia on 14 January 1945.

It was, however, highly advantageous for the German to attack heavily fortified Russian strong points, and antitank gun and tank fronts by night. Attempts to take them by day would have cost large numbers of lives. Night attacks were almost always successful when carried out by troops specially trained for this type of combat, and usually cost only a few casualties.

In the spring of 1943 during the war of position north of Tomarovka, an assault detachment in company strength of the German

167th Infantry Division succeeded in infiltrating the Russian front by night, raiding a strongly garrisoned village from the rear and driving the enemy out. During the previous day, two battalions had been unable to take the village despite strong artillery support.

In January 1943 a company of the 6th Panzer Division supported by six self-propelled assault guns was similarly able to take an important fortified village north of Tatsinskaya by a night assault from the rear. Previously, a panzer grenadier regiment and a 60-tank panzer battalion of the neighboring division had vainly endeavored all day to take this village.

Verkhniy-Kumskiy, the bitterly contested key point of Russian defense against the German relief thrust on Stalingrad, also was taken in a night attack by a panzer grenadier battalion with but minor losses.

Even the Russians began no far-reaching operations in really bad weather, but such weather suited them very well for local operations. During fog and blizzards the Russians always developed lively reconnaissance activity and raided advanced security posts. Not infrequently the Russians would attack in battalion or regimental strength during driving thundershowers to effect reconnaissance in force, to improve their position, or to gain a favorable jump-off position for a major offensive. In winter they exploited the cold eastern storms of the steppes for such assaults, especially in the southern sector. On those occasions the Russians often succeeded in entering the German trenches without firing a shot, and in taking many prisoners. Indeed, the Russians knew very well that the easterly gales drove such clouds of powdered snow ahead of them that the German soldiers were unable to observe and take aim against the wind. They were, therefore, practically defenseless. Only by a ruse were the German divisions fighting there able to regain mastery of the situation. Those front sectors particularly threatened during the easterly gales were simply evacuated and the forces quartered in the villages situated along the sides of the gaps. When the Russians rushed forward into, or over the empty trenches, the German forces wheeled against the rear of the Russians and attacked them from the east; the Russians were then just as defenseless as the German had previously been and were often captured *en masse*. As a result, the Russians later ceased attacking during easterly gales.

Chapter 13

Camouflage, Deception, and Propaganda

Camouflage, deception, and propaganda were expedients much used by the Russians. These, too, reflected in every aspect the oriental character of the people. The Russians carried out measures conforming to their natural talents, such as camouflage and deception, with great skill and effectiveness. Their front propaganda, however, was crude and naïve for the most part. Because it did not correspond to the psychology and mentality of the German soldier in any way, it was ineffective. Although pursued zealously, and with a great variety of media, it attained no appreciable success for precisely those reasons.

I. Camouflage

The Russians were excellent at camouflage. With their primitive instinct they understood perfectly how to blend into their surroundings and were trained to vanish into the ground upon the slightest provocation. As illustrated in the preceding pages, they skillfully used darkness, vegetation, and poor weather conditions for concealing their intentions. Their movements at night and their advances through wooded terrain were carried out with exemplary quietness. Now and then they would communicate with each other by means of cleverly imitated animal cries.

Noteworthy, too, was their camouflage of river crossings by the construction of underwater bridges. For this purpose they used a submersible underwater bridging gear, which could be submerged or raised by flooding or pumping out the compartments. The deck of the bridge was usually about 1 foot below water level, and was thus shielded from aerial observation.

Artificial camouflage was another device used by the Russians. Even at the beginning of the war the Germans came across Russian troops wearing camouflage suits dyed green. Lying prone on the grass, these soldiers could be spotted only at a very short distance, and frequently were passed by without having been noticed at all. Reconnaissance patrols frequently wore "leaf" suits of green cloth patches, which provided excellent camouflage in the woods. Russians wearing face masks were no rarity.

The Russians enforced strict camouflage discipline. Any man who left his shelter during the day was punished severely, if it was forbidden for reasons of camouflage. In this way the Russians were

able to conceal the presence of large units even in winter, as the following example illustrates.

In January 1944 the Russian First Tank Army attempted to take the important railroad hub of Zhmerinka in a surprise attack. The attack was repulsed, and the army encircled to the southeast of Vinnitsa. It broke out of the encirclement during the very first night, and disappeared. The bulk of this Russian army escaped completely unnoticed through the gaps left by the insufficient German forces engaged in the encirclement. In spite of deep snow and clear weather, it could not even be determined in which direction the Red forces had escaped. From the situation, it was to be assumed that they had hidden in the immediate vicinity in a group of numerous, rather large villages with extensive, adjoining orchards. Since German armored units had previously driven through those villages, the tank tracks gave no reliable evidence that the Russians were hiding there. For 2 days and nights the Luftwaffe scouted for the whereabouts of the First Tank Army, and in this connection took excellent aerial photographs of the entire area in which the villages were located. But neither aerial observation nor the study of aerial photographs provided any clue. Not until the third day, when a strong German tank force pushed into the group of villages, was the hiding place of the entire army established in that very area. All tanks and other vehicles had been excellently camouflaged in barns, under sheds, straw piles, haystacks, piles of branches, etc.; and all movements during the day had been forbidden, so that nothing gave away their presence.

II. Deception

Prior to offensives the Russian made extensive use of deception. In order to mislead the enemy as to the time and place of impending large-scale offensives, the Russians feigned concentrations in other sectors by preparing a great number of fire positions for artillery, mortars, and rocket projectors. They strengthened this impression by moving smaller bodies of troops into those sectors by day and night, as well as by setting up dummy artillery pieces, tanks, and aircraft, and making appropriate tracks leading up to them. The Russians also were known to place an entire tank army behind an unimportant sector, so as to create the false impression of an impending attack from that point. By running their motors at night they sought to create the impression that tank and motorized columns were on the move. Artillery trial fire and the use of roving guns likewise were among the most commonly used Russian deceptive practices.

For purposes of deception on a more limited scale, the Russians frequently used German uniforms for whole units as well as for in-

In the summer of 1943 a German-speaking Russian in the uniform of a German officer succeeded in driving a German truck right up to headquarters of the Rowne military government detachment (Ortskommandantur), and in obtaining an audience with the commandant, a general. He gagged the commandant, wrapped him up in a big rug, carried him out of the truck which he had left idling outside, and delivered him to the partisans. Only by the words, "Thanks, comrade"—words that an officer in the German Army simply would not use in addressing a private—did he arouse the suspicion of the kidnapped officer's orderly, who had innocently helped him load the heavy carpet into the truck. Although an immediate report was made by the orderly, it did not lead to the apprehension of the kidnapper.

In Lwow, in the spring of 1944, apparently the same Russian, dressed as a German officer, succeeded by similar trickery in killing the deputy governor of Galicia as well as a lieutenant colonel, and later a sentinel who wanted to inspect his truck. Each time he succeeded in escaping.

Similar surprise raids and deceptions of combat troops through the misuse of German uniforms occurred at all sectors of the front in ever increasing numbers.

III. Propaganda

The propaganda of the Russians exploited military and political problems and used all the technical means by which modern propaganda is disseminated—radio, press, leaflets, photographs, planes flying by night towing illuminated streamers or equipped with loud speakers and photographs, loudspeakers set up on the ground, leaflet shells, rumors spread by agents, Russian PW's, and Germans pretending to have escaped from Russian captivity. Since there were also Finnish troops on the Arctic Front, to whom different things were of importance, Russian propaganda at that front sometimes met with difficulties, and was not properly coordinated. One also had to differentiate between propaganda aimed at higher military commanders, the troops, and the German people. The various groups to be propagandized were dealt with and approached from entirely different angles. From a literary and artistic standpoint, much of the Russian propaganda was of high caliber.

The Russian intelligence service covered events in the German Army with amazing speed and accuracy. Photographs, for example, taken by one of the German propaganda companies for various reasons, appeared almost simultaneously in the pertinent Russian army newspapers. The propaganda at the front, however, was crude and clumsy. For that reason, it made but little impression. Political

The Germans obtained information on Russian propaganda addressed to their own troops from captured Russian army newspapers. It, too, employed words and pictures. Nationalism and ideological fanacticism were exploited with equal intensity. The Russians seemed to criticize quite frankly some of the events at the front. Conditions among German troops in opposing positions were treated satirically for the most part. In the propaganda directed at their own front lines, the Russians pounded into their soldiers' heads the story that the Germans shot every PW on the spot. This propaganda-induced fear of being taken prisoner was to make the Russians soldiers stand their ground to the very end. The story was believed, and that particular line of propaganda accomplished its purpose. There were relatively few Russian deserters. On the other hand, older Russian soldiers who had worked in Germany as prisoners during World War I were immune to such atrocity stories and deserted very frequently.

A large part of the Russian propaganda effort was devoted to studying and counteracting German propaganda activities. Reading and passing on German propaganda leaflets was forbidden under penalty of death.

By erecting signs, by loudspeaker messages, or by dropping propaganda leaflets from aircraft, the Russians made extensive use of front-line propaganda urging the Germans to surrender or desert. Often the commander was addressed personally, sometimes by captured German officers of all ranks, who allegedly belonged to the "Free Germany" organization. Many propaganda leaflets were dropped that represented pictorially the Russian superiority in men, weapons, and matérial, as well as in armament potential. Also alleged German atrocities and acts of destruction were shown. It was, however, not quite clear just what propaganda purpose the exhibition of nude women standing on the breastworks of Russian trenches was supposed to accomplish. They supposedly were German girls who had fallen into Russian hands.

The German command had little reason to be concerned over Soviet propaganda. Neither the spoken nor the printed Russian propaganda inspired and credulity, for it contained too many obvious lies. Besides, the German soldier had seen the dubious blessings of Bolshevism at close range, and had discussed this dictatorial system with its opponents among the Russian people. There were a great many anti-Communists among the Russian intellectuals. Those people voluntarily joined in the German retreat in 1943, because they wanted to have nothing more to do with the Russian system.

Even before the Eastern Campaign, strong anti-German propaganda was disseminated. In the schools of many Russian cities and villages German language texts were found which contained the most coarse invectives aimed at Germany. That was the manner in which communism spiritually prepared for war against Germany. In a fairly large village south of Leningrad, half-grown, German-speaking boys naïvely admitted that they had been selected as *Komsomoltsy* (the Soviet counterpart of the German Hitler Youth) for Magdeburg.

Occasionally the Russians also doubled back German PW's with false reports. The Germans frequently picked up particularly well-trained Russian deserters who were supposed to supply them with false information. This type of propaganda was somewhat less than a success. With the exception of individual non-German soldiers in German uniform, instances of desertion from the German rank remained limited to the acts of a few desperadoes.

During the first years of the war the Russians apparently had sought to impress the German troops and lower their morale by committing numerous atrocities against them. The great number of such crimes, committed on all sectors of the front especially in 1941–42, but also during later German counteroffensives, tends to support that presumption.

On 25 June 1941, two batteries of the German 267th Infantry Division near Melniki (Army Group Center) were overrun in the course of a Russian night break-through and bayonetted to the last man. Individual dead bore up to 17 bayonet wounds, among them even holes through the eyes.

On 26 August 1941, while combing a woods for enemy forces, a battalion of the German 465th Infantry Regiment was attacked from all sides by Russian tree snipers, and lost 75 dead and 25 missing. In a follow-up thrust, all of the missing men were found shot through the neck.

In January 1942, an SS division attacked the area north of Szyczewka (Army Group Center). On that occasion, a battalion fighting in a dense forest area suffered a reverse and lost 26 men. German troops who later penetrated to that point found all the missing SS men massacred. In April 1942, an elderly Russian civilian, a carpenter, appeared at a German division headquarters southwest of Rzhev, and reported that he had encountered a group of about 40 German PW's with a Russian escort in his village a few miles behind the Russian front. The prisoners, he continued, had soon afterward been halted at the northern outskirts of the village, where they had dug deep pits. According to eyewitness reports, the prisoners had subsequently been shot, and buried in those pits. A few days later, the village was captured in a German thrust. The incident was investigated, and found to be true.

During the battle of Zhizdra, in early March 1943, a battalion of the German 590th Grenadier Regiment was assigned the mission of mopping up a sector overgrown with brush. The attack failed.

When, on 19 March 1943, the sector again passed into German hands after a counterattack by the corps, 40 corpses of soldiers from the battalion were found with their eyes gouged out, or their ears, noses, and genitals cut off. Corpses found in another sector of the battlefield bore signs of similar mutilations.

On 5 July 1943, during the German pincers attack on Kursk (Operation ZITADELLE), a battalion on the southern flank of the 320th Infantry Division lunged forward without being supported by other units. It ran head-on into the counterattack of an enemy division, and was repulsed. About 150 men were taken prisoner. Shortly thereafter the Germans monitored a telephone conversation between Russian lower and higher headquarters (probably regiment and division), which went about as follows:

> Regimental commander: "I have 150 Fritzes (derogatory terms for German soldiers) here. What shall I do with them?"
> Division commander: "Keep a few for interrogation, and have the others liquidated."

In the evening of the same day, the presumed regimental commander reported the order executed, stating that the majority of the Fritzes had been killed immediately, and the remainder after they had been interrogated.

The Russians sought to intimidate their own civilian population by similar atrocities. In March 1943, after the recapture of Zolochev, a small city 20 miles north of Kharkov, the inhabitants told the German military police that the Russians, before their retreat, had herded and whipped a rather large number of local boys between the ages of 14 and 17 years naked through the streets in intense cold. Afterward, they were said to have disappeared into the firehouse, where the NKVD had its headquarters, never to be seen again. During a subsequent search, all of the missing boys were found in a deep cellar of the firehouse, shot through the neck and covered with horse manure. The bodies were identified and claimed by relatives. All had severly frostbitten limbs. The reason for this particular atrocity was assumed to have been the alleged aid rendered the German occupation forces.

One medium of propaganda employed frequently by the Russians during the last years of the war were German PW's who would be doubled back to the German lines, usually to sectors held by their own regiments, with the mission of inducing their comrades to desert by telling them how well they would be treated as Russian prisoners. That type of propaganda failed, as did similar attempts on the part of the Germans with Russian PW's who had volunteered for this assignment.

Few Russian soldiers, on the other hand, believed German propaganda. Whenever it fell on fertile soil, its effects were promptly neutralized by counterpropaganda and coercion. Except during the great encirclement operations, there were only isolated instances of wholesale desertion of Russian units. If it did occur, or if the number of individual deserters increased, the Soviet commissars immediately took drastic countermeasures.

During the protracted period of position warfare along the upper course of the Donets in the spring of 1943, a front-line unit of the German XI Infantry Corps south of Byelgorod was able to take a large number of prisoners. The prisoners were taken in midday raids, since it had been ascertained from deserters that the Russians in this terrain sector—which could be readily observed from the western bank of the river—were allowed to move only at night, and therefore slept during the day. The prisoners admitted that many of their comrades were dissatisfied and would like to desert; however, they were afraid of being fired upon by the Germans and would have difficulties crossing the deep river to the German lines. Contact with the company of malcontents was soon established, and the necessary arrangements made. Unobstrusive light signals on the chosen night informed the Russian company that the necessary ferrying equipment was ready, and that German weapons stood ready to cover their crossing. All necessary precautions had been taken in case of a Russian ruse. Just the same, the company really dribbled down to the banks of the river, and in several trips was ferried across the Donets in rubber boats; the company commander, an Uzbek first lieutenant, being the very first. Part of the company, however, ran into Russian mine fields, suffering considerable losses from exploding mines as well as from the fire of the alerted Russian artillery.

The result of this undertaking and the above-mentioned incidents was that, having become unreliable, the 15th Uzbek Division was immediately withdrawn from the front, disciplined, and committed elsewhere.

PART FOUR
THE RED AIR FORCE

Chapter 14

A Luftwaffe Evaluation

Numerically, the Red Air Force was greatly underestimated by the Germans before the beginning of the Eastern Campaign. But in spite of its numerical strength, which increased considerably during the course of the war, it had no decisive influence on the outcome of the battles in the East.

Russian air force tactics were inflexible and strictly followed a fixed pattern. They were wanting in adaptability. Only in late 1944 and early 1945 could the first beginnings of strategic air warfare be observed. The Russian Long Range Force (*Fernkampfflieger-korps*), which came under the surveillance of German radio intelligence as early as 1941, was employed primarily in transport operations. Although the Red Air Force was an independent service of the Russian armed forces, it was employed almost exclusively on the battlefield, in joint operations with the army.

The Germans detected impending Russian attacks by—among other clues—the early assembly and concentration of combat aviation on airfields near the front. In this connection, the Russians proved very adept at building auxiliary airfields. Ruthlessly exploiting labor forces drawn from the civilian population, and using the most primitive equipment, they would have the airfields completed and ready for take-offs within an amazingly short time. Neither winter nor the muddy periods interfered with their work. The Russian Air Force made liberal use of dummy airfields and aircraft, as well as of numerous methods of camouflage.

In combat, the direction and commitment of aviation was assumed by command posts near the front, one of the most ably handled phases in this respect being the control of fighter aircraft from the ground. On the other hand, cooperation between fighter and ground-attack aircraft or bomber formations left much to be desired. Fighter escorts seldom accompanied them on their missions; if they did, they scattered upon first contact with the enemy.

The Russians proved to be excellent bad-weather pilots. Although not equipped for instrument flying, fighters and ground-attack air-

craft hedge-hopped over battlefields in the most inclement weather. They liked to take advantage of low ceilings and blizzards in order to surprise the enemy.

Russian night fighters as a rule confined themselves to attacks on those targets on which they had been briefed, and were equipped with only the most basic navigation aids. The Germans were amazed to discover that Russian night fighters almost always flew with their position lights burning.

Air force formations concentrated for major operations always revealed a rapid decline of fighting potential once they had joined action. The number of planes capable of flying combat missions decreased rapidly, and a rather long time was required to restore them to flying condition. The Russians made extended use of artificial smoke for camouflaging and protecting industrial plants, railroad junctions, and bridges against strategic air attacks.

The rapid repair of bomb damage was noteworthy, especially in the case of railroad installations. Again, labor forces for this purpose were ruthlessly commandeered from the civilian population.

Air supply operations assumed substantial proportions during the course of the war. Planes either landed the supplies, or dropped them by parachute. Agents and armed saboteurs dropped behind the German lines likewise played a special role.

At the beginning of the war, Russian ground troops were extremely vulnerable to air attack. Very soon, however, a change took place. Russian troops became tough and invulnerable to attacks by German dive-bombers and ground-attack aircraft.

Training in defense against low-level attacks was well handled. Every weapon was unhesitatingly turned against the attacking aircraft, thereby constituting a formidable defense. Whenever the weather permitted, the Russian troops avoided billets and concealed themselves masterfully in the terrain. If, in exceptional cases, they sought shelter in inhabited places, they had strict orders not to show themselves outdoors in the daytime.

In keeping with Soviet ideology, the Russians employed an increasing number of female pilots and other female air crew members as the war went on. Women not only flew transport missions, but manned combat planes as well.

In conclusion, it may be said that the Red Air Force, although conceived and built up on a large scale, was very primitively trained. Its will to fight, its aggressive spirit, and its mastery of technical aspects left much to be desired. Although constantly superior in numbers to the Luftwaffe, it was always inferior when it came to combat. Usually a small number of German fighters sufficed to clear the skies of Russian planes.

Chapter 15

A Ground Force Evaluation

I. Tactical Employment

With regard to matériel and training, the Soviet Air Force in World War II was always much inferior to the Luftwaffe despite the fact that the number of its planes increased steadily and had outnumbered those of the Luftwaffe as early as 1942. Not even the introduction of new Russian types of planes was able to effect any decisive change in the disproportionate performances of the belligerents. For that reason, the Russian Air Force often was no factor at all in ground warfare. Sometimes it played a secondary role, but never one as decisive as that of the air forces of the Western Allies.

At the beginning of the great German offensive in the East, the ground troops saw only flights of three or four reconnaissance planes, individual bomber squadrons, and only a few fighters (Soviet I-16 single-seat pursuit planes, dubbed "Rata" in the Spanish Civil War). They quickly became victims of German fighters. Seldom did one of the reconnaissance planes return from a mission. No sooner had they been sighted than a long trail of smoke told of their annihilation. Their crews followed them down in parachutes, they being among the first Russian prisoners who with bitter hate, or, in individual cases, with uncontrolled sobbing, awaited their fate: they expected to be shot, as their propaganda had led them to believe. They became all the more confused when the Germans treated them in a friendly manner. The same thing happened to the bombers which flew straight toward their targets, without fighter escorts, in single squadrons of five or six planes, or in from two to three squadrons, one right behind the other. They did not change their course even when the powerful German Flak played havoc with them. Direct hits frequently tore planes into shreds. The rest of the squadron would continue toward its objective until it was shot down by German fighters during the bombing run or the return flight. It happened repeatedly that a whole squadron would be shot down in a few minutes. At that time, an attack by Russian bombers meant nothing more to the German ground troops than an exciting spectacle, which always ended in tragedy for the Russians. Not until the Russians had realized the futility of their efforts did they attempt to ward off their fate by jettisoning their bombs and quickly turning tail upon the approach

of German fighters. In that way at least some of their planes succeeded in reaching the home base, only to be finished off the next day.

The Russians were in a fair way to lose their last aircraft by this completely futile commitment in detail. True, the Russian Air Force was able to replace the lost planes, but it never did recover from the shock effect of the German fighters. The superiority of German fighters over Russian planes of any type was evident right up to the end of the war.

Soon, however, the bloody lessons began to bear first fruit. During the battles on the frontier, the Russian planes could be neutralized almost completely, but later, when the German troops were crossing the Dnepr and Dvina Rivers, concentrations of bomber units with fighter escorts did make their presence felt. Skillfully maneuvering, they hit the bridges and crossing sites in surprise attacks; coming in from the flanks or from the rear they harassed the German troops crossing the rivers and were responsible for the first German losses. However, the German crossings of the two rivers were not stopped nor even delayed. At the Luga the Russians employed their new technique by using all aircraft available in the Leningrad area in shuttle raids, in order to destroy individual, isolated bridgeheads of advanced German armored elements. The Germans suffered considerable losses, because their troops were squeezed into a narrow area, and no air support was to be had to counter the Russians because the ground organization of the Luftwaffe had not yet caught up. Nevertheless, the tactical effect was nil, for the Russian Air Force carried on its own private war, as did the artillery, the tanks, and the infantry; of the latter, each division attacked in detail. The result was that in July 1941, for example, the Russian forces, 8 to 10 times superior in strength to the Germans, were not able to take the Porechye bridgehead (70 miles southwest of Leningrad) which had been cut off completely during the first days. The Russians did not succeed in destroying even one of two wooden bridges that were located within 300 yards of each other, after bombing them daily for a period of weeks, and sending 2,000 heavy shells in their direction every day, thus attesting to the meager technical skill of the artillery and the bombers.

The initial lack of any cooperation between the various Russian arms and the deficiency in technical skill, led to continuous failures in the above-mentioned sector as well as on all other fronts. The Russians, gradually recognizing these mistakes, obviously strove for improvement. They developed appreciable technical skill. Cooperation between the combined arms also improved visibly. Nevertheless, this particular aspect remained their weakness to the end of the war. The art of cooperation presupposed a measure of personal initiative,

knowledge of tactics, and acute perceptory faculties that the Russian did not seem to possess because those qualities ran counter to his national character and his upbringing. He attempted to compensate for those serious weaknesses by mass commitments of forces and matériel also in the case of his air force. In the air, however, his efforts were not crowned with the same degree of success as on the ground. Eventually, the endeavor on the part of the air force led to the formation of main efforts which became more pronounced from year to year, and which made themselves felt all the more during the Russian large-scale offensives of the last war years when the fighting strength of the Luftwaffe was ebbing visibly because of fuel shortage and grievous losses in other theaters.

The Russian Air Force missed its first great chance in the winter of 1941–42 when the Germans were withdrawing before Moscow. A concentration of most of its air power on the German columns, confined to the few roads that were free from snow, would have had a devastating effect.

Even during the great Russian offensive in the winter of 1942–43 between the Don and the lower course of the Dnepr, as well as during the defense against the German relief push on Stalingrad, the concentrations of Russian aircraft were as yet not strong enough to influence the course of events to any appreciable extent. Air operations properly coordinated as to time and place with those of the ground forces were likewise an exception to the rule.

In the summer of 1943, on the other hand, the concentrations of Russian planes were much greater and their activity much more vigorous. The Russian Air Force played an important role in the battle south of Kursk (the German ZITADELLE attack, July 1943) and in the Russian counteroffensive in August 1943. But its activity soon dwindled and a month later the German armies succeeded in escaping across the few Dnepr bridges to a position behind the river barrier without any interference on the part of the Russian Air Force.

Similar mass sorties were repeated in the battles of Lwow and Vitebsk in 1944, and in the second battle of East Prussia in 1945. The main efforts, however, though clearly recognizable at the start, always dissolved within a short time, and the Russian Air Force would disappear.

II. Combat Techniques

At the start of the war, missions were flown at high altitudes. Fighters (Rata) attacking at low level were first encountered by the Germans on the northern front at the Luga River. They strafed and dropped small bombs on batteries or marching columns, without accomplishing any noteworthy results. During the break through of

the Leningrad Line in September 1941, there appeared for the first time small groups of Russian fighters equipped with rocket bombs. Their accuracy and effectiveness was inconsequential.

The IL–2, a very effective and unpleasant ground-attack plane made its debut in February 1943. It could be identified by a cockpit armored with bulletproof glass about 4 inches thick. The pilot was protected by steel plates in the rear and bottom of the cockpit. This type of airplane was invulnerable to rifle and machine gun fire of any caliber. Its armor also withstood 20-mm. Flak projectiles. It is, therefore, understandable that these ground-attack aircraft were used at danger points, and unceasingly harassed ground troops once they had caught them in a low-level attack. In that manner they were able to bring daylight movements of motorized troops to a standstill, and to inflict considerable losses on them with their twin-barreled machine-gun fire and small fragmentation bombs. Flak guns of 37 mm. or heavier caliber were of no use in the defense against their hedge-hopping attacks because they flew too fast for allowing proper aim. Thus, it was necessary to use the 20-mm. armor-piercing ammunition, the use of which had previously been forbidden for any other purpose than antitank defense. Once this special-purpose ammunition was used by the 20-mm. Flak, the Russian IL–2's suffered such heavy losses that they rapidly disappeared from the scene.

By the winter of 1944–45, Russian antitank weapons in aircraft had become so highly developed that they represented a seriously growing menace to German tanks and self-propelled assault guns. By January 1945, for example, during the second battle of East Prussia, at least eight self-propelled assault guns were set afire on one day by Russian antitank planes.

That year, too, Russian aircraft began to hunt down German locomotives and individual motor vehicles which they suspected of carrying senior officers. The locomotive hunts led to serious losses on railroad lines located close to the front. The losses ceased only after the trains on those lines had been armed with light Flak. On the Arctic Front, the destruction of locomotives had particularly troublesome consequences. Since the Finnish supply of locomotives was very limited, the Finnish Railroad Ministry wanted to discontinue operations on the Kemijaervi line which was seriously endangered, but urgently needed for German supply operations.

Hunting individual German motor vehicles also led to losses. On Easter Sunday 1944, for example, a German army commander was traveling to the front north of Buczacz, Galicia, when Russian fighter squadrons attacked his car. They made repeated runs on the lone automobile, killed the commander's entourage, blew the car to bits with 80 bombs, and prevented the commander himself from continuing

his journey. Only when the higher German commanders used old, unidentified cars did the attacks cease.

Russian daytime bombing raids even in the later years of the war were carried out mostly by small groups at altitudes of 7,000 feet or higher. Raids by whole wings were an exception to the rule. Carpet bombing by large bomber formations was unknown to the Russians. On the other hand, during the last two war years, they frequently dropped clusters of small fragmentation bombs on live targets. The bombs would fall within a radius of a hundred yards in such a dense pattern that no living object within the effective beaten zone could escape the splinters. The bombs fell into even the narrowest trenches and, because of their great fragmentation, were very dangerous and greatly feared. German planes surprised on the ground often would be set afire or destroyed by the fragments of bombs dropped in such patterns. The effect of these bombs on the morale of the German troops was likewise serious.

The Soviet bombers displayed poor marksmanship. For example, in an attempt to help their sorely pressed infantry on the edge of a forest by bombing the German lines, all the bombs fell on the Russian position and wreaked such havoc that, after the second salvo had been dropped, the German infantry was able to take the position without losses. In most Russian bombing attacks the planes would fly over a troop-filled road at a right angle, so that some bombs would be fairly certain to hit the target. In flying along the course of a road it often happened that all the bombs fell so far to the sides of the road that they were completely ineffective.

Bomber attacks at night bore the stamp of nuisance raids. In nearly all instances they were flown by individual planes and directed against targets located close to the front, such as billets, highway traffic, artillery positions, and other points occupied by troops. They were annoying to be sure, but seldom caused major damage. In order to make it difficult for the night bombers to locate their targets, especially on moonlit nights, the Germans smeared all whitewashed houses with mud and conducted all movements without lights. Installation of small Flak units at persistently attacked points caused heavy losses of Russian night planes, since their silhouettes in the moonlight made them easy targets. The attacks ceased immediately.

Night attacks directed against large German installations, such as railheads, airfields, factories, cities, etc., lasted all night. They were carried out by a chain of individual aircraft following each other at short intervals. Flights to and from the target followed different routes. Whenever the Russians aimed at destroying extensive installations, they repeated their bombing raids for several consecutive nights. In the summer of 1944, for example, most of the

city of Tilsit in East Prussia was destroyed in a long series of Soviet night attacks.

On dark nights, Russian aircraft used parachute flares resembling Christmas trees to mark the direction of the bomb run and the target areas for the attacking bombers. Frequently, however, inhabited places thus bracketed by a rectangle of flares could be evacuated before the arrival of the first bombers. In other cases, the wind blew the rectangles so far away before the bombers appeared that all the bombs fell into open fields and caused no damage.

The Russians used German searchlights and other guide lights as navigation aids, and for that reason never attacked them. Russian night fighters seldom appeared and were of very minor importance.

A faulty sense of orientation in the air, or an inadequate knowledge of map reading, repeatedly caused Russian pilots accidentally to land behind the German lines. In January 1943, for instance, a Russian pilot accompanied by an engineer was supposed to repair another plane which had made a forced landing. Despite perfect visibility, the repair-shop plane strayed across the clearly recognizable river which formed the front and landed in German territory. Much more distressing to the Russians was the accidental landing in the German Buczacz bridgehead of a liaison plane with courier mail and an *Armeeintendant* (administrative official of an army) aboard. That incident took place shortly before the Russian summer offensive east of Lwow in 1944. The pilot was flying from Kolomea to Tarnopol, but landed at the halfway mark because the similarity of terrain and the brown uniforms of a Hungarian unit, which he mistook for Russians, had confused him.

The Russians repeatedly used captured German planes, with the German insignia retained, for purposes of reconnaissance and for occasional special missions.

PART FIVE

PARTISAN WARFARE

Chapter 16

Partisan Combat Methods

Generally speaking, Russian partisan groups on the Eastern Front were formed early in 1942. At first they were mainly isolated bands of little strength, frequently dropped from aircraft, operating in rear areas well behind the German front. During the summer of 1942, however, these bands were gradually combined into more closely knit groups, put under a unified command, and continuously reinforced. Accordingly, their operations grew in scope and impact.

Partisan group activities seldom covered areas near the front except when extensive, pathless forests favored their approach. In general, the partisan groups would maneuver in the rear areas of the German armies, in woods and swamps next to highways and railroads. They avoided open territory and regions occupied by German troops, but kept the latter under surveillance.

From the outset the German troops had difficulty defending themselves against this type of warfare. Its effectiveness had been underestimated. Apart from the fact that, considering the vast areas, the German forces were not numerous enough to combat the steadily expanding partisan groups, the front-line troops, which had been trained for orthodox warfare, all lacked experience in antipartisan warfare.

During large-scale enemy break-throughs, or German withdrawals, strong partisan groups frequently managed to coordinate their operations with those of Soviet cavalry, ski units, infiltrated infantry, or paratroops. Substantial German forces (usually several infantry and panzer divisions) had to be mustered in order to combat the joint enemy efforts. Prior to large-scale Russian offensives, strong bands would often migrate to the areas that the Red Army soon hoped to take. Such movements, therefore, gave some indication of Russian intentions. Prior to the beginning of the large-scale Red Army offensive in East Galicia in July 1944, for example, numerous bands worked their way into the Carpathian Mountains southwest of Lwow, which were among the objectives of the Soviet operations.

On the other hand, during each Russian withdrawal, as well as subsequent to battles of encirclement, innumerable soldiers cut off from their own forces, and sometimes entire combat units, made their way to the partisans and fought with them. In such instances, too, partisan activities developed into a serious threat.

During the winter, strong bands, well organized from a military standpoint and commanded by specially trained leaders, developed intense activity in the extensive woodlands of the Eastern Front.

The bands were generally organized into groupments of from 3,000 to 5,000 men each. As long as the front remained static, these groupments would remain in a fixed location; they were quartered in winterproofed camps, excellently constructed and heavily guarded. Smaller groups, varying greatly in strength, comprised at least 100 men. Attached to each groupment was a number of these smaller partisan groups. They branched out through the entire rear area and frequently were only in loose liaison with the groupment. They constantly changed their position and therefore were difficult to locate in the vast rear area, which was only sparsely occupied by German troops. They had contact men in all the larger villages of importance to them. Dispersed and cut-off Russian units gave them even tactical striking power. In 1941, for instance, in the area of Army Group Center, 10,000 men under General Kulik operated very skillfully and could not be cornered. Another example was the remnants of the 32d Kazak Division, whose destruction required the commitment of German front-line troops on 6 and 7 August 1941. In 1944, activities of partisans, reinforced by infiltrated troops, had reached such proportions west of the extremely swampy Narva River that the left wing of the northern front (III SS Panzer Corps) had to be pulled back in order to form a shorter and more easily guarded line.

Every camp of the larger partisan groups was secured on all sides—in some sections to a depth of several hundred yards—by thick underbrush, brier obstacles, or abatis and wire entanglements. All roads leading to the camp were blocked or camouflaged, or detours were built which led in another direction. Traffic to the camp was conducted on paths known only to the initiated. Sometimes these paths were protected by bodies of water, with crossings built 8 to 12 inches below water level, or by large stretches of swamp which could be crossed only on swamp skis. All movements of strangers were carefully controlled by sentries stationed far from camp and disguised as peasants. Strangers were also kept under close surveillance by a network of spies active in all villages in the vicinity.

The camps were well supplied with weapons, ammunition, explosives, and rations. Only very reliable partisans were put in charge of these supplies.

The camps procured their food supplies by forced requisitions in nearby villages. Villages refusing food contributions were ruthlessly put to the torch by the partisans; the men were dragged into the woods, and the women and children dispersed. Supplies were also received by aircraft, which dropped the rations in the immediate vicinity of the camp when prearranged light or fire signals were displayed. Looting vehicles during partisan raids likewise provided ammunition and small arms for the bands.

Excellent camouflage prevented any aerial observation of the camps. The shelters were allowed to be heated only at night, so that no smoke would disclose the existence of the camp during the day. The partisans succeeded in maintaining the secrecy of the camps for a long time by having small bands appear in remote villages and by disseminating false rumors concerning partisan movements. The mere suspicion of betrayal was sufficient cause for execution of the suspect. The same fate threatened the family of the condemned. These measures explain why all partisans operations were kept secret. Whoever joined a partisan group, voluntarily or involuntarily, could leave it only at the risk of his life.

The partisans also had signal communications at their disposal. The larger partisan units received their directives by short-wave radio, so that they had up-to-date information about current military developments in their respective sectors. Air couriers were also used. There was a carefully camouflaged landing place for liaison airplanes in the immediate vicinity of almost every major camp.

Practically without exception partisan operations were carried out at night. Daytime raids seldom took place, and then only in areas in which no German troops were stationed for miles around. Raids of that type were usually confined to individual motor vehicles.

A major partisan operation, with the demolition of a railroad bridge as its objective, would proceed as follows: A long column of women and children would move along the right of way in the direction of the bridge. Presuming them to be refugees, the German sentry would take no action. When the head of the column had reached the bridge, heavy surprise fire was directed against the bridgehead from the end of the column. Machine guns, set up on the roadbed in the direction of the bridge, pinned down the German guards. Under this fire cover, and by utilizing women and children in violation of international law, the partisans succeeded in installing prepared demolition charges and in destroying the bridge.

Partisan operations generally included mining main highways, demolition of railroad tracks, mining railroad beds and arming the mines with push and pull igniters, surprise fire attacks on trains, looting derailed railroad cars, raids on trucks and convoys, and burn-

ing ration, ammunition, and fuel depots. Less frequent were raids on command posts of higher German headquarters.

The partisans followed the practice of avoiding open combat as much as possible. This practice was indeed the guiding rule upon which their method of warfare was based. Unusual developments at the front would immediately result in extremely lively partisan activity, essentially aimed at the disruption and destruction of railroad lines. During a major German attack, for instance, the main line of a railroad that had to handle the supplies for three German armies was blasted at two thousand points in a single night and so effectively disrupted that all traffic was stalled for several days. Such large-scale operations, carried out by small partisan teams and numerous individuals, at times seriously hampered the supply of the German troops.

Chapter 17

Defense Against Partisan Activity

The German forces in Russia took both passive and active defense measures to protect their rear areas against the surge of partisan activities.

I. Passive Antipartisan Measures

Each army group created a special staff whose duty it was to collect all information concerning the appearance and movement of partisans by close contact with the military authorities in the rear areas and with Russian community heads, as well as by a network of agents in areas threatened by partisans. All information thus gathered would immediately be passed on to the German military authorities concerned.

Small headquarters were combined to protect them more effectively against partisan raids.

Local defense units were drawn from among the Russian population in threatened areas. Often Russian civilians urgently requested this measure because they suffered from confiscation of cattle, forceful removal of men, etc., by the partisans.

All traffic was halted on especially endangered roads at nightfall; such roads were used in daytime only at certain hours and in convoys escorted by armed guards.

Railroads, bridges, and trains were protected. Outguards within sight or earshot of each other were posted along railroad lines in threatened areas. The outguards were quartered in blockhouses protected by wire entanglements and abatis, behind which lay also the entrenchments for defense. Wherever the railroad line led through wooded terrain, all trees within 50 yards of either side of the right-of-way were felled to provide a better field of vision.

Reinforced outguards equipped with infantry heavy weapons protected all bridges. Another precaution, however, had to be taken in addition to furnishing local protection for bridges and adjacent bridgeheads, particularly whenever larger bridges were to be safeguarded. Strong guard detachments had to be posted at a great enough distance to permit them to spot approaching partisan bands, and to allow time for an orderly preparation of countermeasures. Precautions of that nature had not been taken prior to the previously mentioned partisan operation against the railroad bridge.

All trains going through danger zones had two sand-filled gondola cars coupled in front to protect their locomotives from mines. Each train was escorted by a guard detachment of about forty men.

Furlough trains were guarded by the soldier-passengers themselves. For that reason, all men going on furlough had to carry their small arms. Night traffic on particularly imperiled railroad lines was discontinued from time to time. During the day, the trains on these lines sometimes traveled within sight of each other. This procedure, however, was possible only because Russian air activity in the rear area was very limited.

II. Active Antipartisan Measures

Units such as security divisions and forces particularly organized for that purpose were normally assigned the mission of fighting the partisans. The great depth of area required a substantial number of such units, and since they were not available in desired numbers, security divisions frequently had to be assigned zones that they were hardly able to control.

In the forest terrain of Baranovichi and Minsk, for instance, the German 707th Security Division had to guard an area of 40,000 square miles (larger than all of Austria). Its duties usually consisted of protection of important points in seriously threatened wooded areas; surveillance and protection of zones and villages through which led military supply routes, and which were constantly imperiled by partisan bands; reconnaissance of partisan camps and roads leading to them; daily dispatch of as many combat patrols as possible into partisan territory to prevent the partisans from uniting into groups and establishing permanent bases; and operations against detected partisan camps.

Whenever the Germans planned a major operation against a detected partisan camp, the project had to be kept a strict secret from the troops. Experience had taught that if such plans were revealed, even larger partisan groups immediately dissolved, only to assemble again at a different location. It happened repeatedly that in carefully prepared operations partisan camps, which shortly before had been fully occupied, were found deserted. The troops, therefore, could only be informed of the actual plans after they had reached the outer line of encirclement.

The assembly of the attacking troops had to take place at least 1 day's march away from the partisan camps. The advance toward the outer line of encirclement had to be so timed that all troops could reach it simultaneously and occupy it immediately. As far as possible, the outer line of encirclement was anchored on natural obstacles that were easy to block and to keep under surveillance (for example, rivers).

The troops were deployed in the outer line of encirclement in such a manner that they formed a continuous line of sentries, with each soldier within calling distance—and at night, within sight—of the next. Behind this line of sentries, pursuit detachments were kept ready for immediate employment against partisan bands which might break out. As soon as the encirclement had been completed, leaflets were dropped over all inhabited places within the ring, ordering all inhabitants to evacuate at once and to asesmble at a designated point.

The contraction of the ring of encirclement proceeded during daytime only, in phases covering not more than 2 to 3 miles per day, and the territory was carefully combed. Individual sectors had to be occupied by at least 2 hours before twilight, so that the troops could establish themselves and become acquainted with the terrain ahead while it was still light.

Sectors easily distinguishable in the woods (glades, paths, railroad lines) were designated as the new line of encirclement. Close contact between individuals had to be maintained. Nighttime security at the sector boundaries was of particular importance. The procedure of detailing forces for guarding unit boundaries, as well as the command over those forces, had to be clearly regulated. The further contraction of the ring up to the final encirclement of the camp followed the same pattern as described above.

As soon as the encirclement had started, the surrounded area was kept under constant aerial observation. By dropping messages, the planes immediately notified troops and officers in command of any observed breakout attempts. Since breakouts were to be expected mainly at night, sufficient security detachments had to be posted in front of the sentry line. With the contraction of the ring of encirclement a proportionate number of reserves could be withdrawn, and their follow-up had to be properly regulated. If the partisans still remained in their camp by the time the troops had reached the final line of encirclement, a heavy air attack would usually enable the troops to score a quick success.

Experience had taught the Germans that this type of antipartisan warfare, though requiring large numbers of troops and much time, promised the greatest success. No other methods proved themselves in wooded terrain, since breakouts at night could hardly be prevented. Rigid discipline was a prerequisite for the success of such an operation. The designated objective for the day could not be changed during the operation, and the slightest independent changes on the part of the troops would disrupt the line of encirclement and make the breakout of partisans possible.

Winter proved to be the most favorable season for antipartisan operations because all movements could be more readily observed in snow-

covered terrain. In summer the dense foliage of the woods made such operations very difficult. As far as possible they were to be carried out during bright nights, best of all during a full moon. Liberal armament with machine pistols proved advantageous. Mortars were found to have more of a demoralizing than actual effect, since their shells burst in the trees. Artillery could hardly be used during advances in woods. As a rule it could be put into action only during the battle for the fortified camp itself. Depending upon the terrain, the Germans found it advisable to have individual guns follow directly behind the leading elements. The employment of tanks, where the terrain was suitable, produced excellent results. In such operations the troops had to have an adequate supply of signal pistols and cartridges. In the case of swampland, the troops were to be equipped with swamp skis.

The wooded terrain, which afforded poor visibility, and deceptions at night often caused shooting frays that started a panic among German units or resulted in their firing on their own troops. The Germans therefore found it advisable to prohibit the firing of all infantry light weapons except during partisan attacks. Special regulations for opening fire also were required when the final ring of encirclement had been closed and the troops were facing each other at a short distance.

Chapter 18

Non-Russian Partisans

In addition to the Russian partisan groups, there also existed in the East strong Ukrainian and Polish groups, as well as a few weak Czech and Jewish groups. The latter two were of no great importance. Some of the bands were for, and others against, Russia. They fought each other cruelly and ruthlessly to the point of annihilation. In 1944, for instance, at the Polish-Ukrainian linguistic frontier, Polish bands raided Ukrainian villages, and Ukrainian bands raided Polish villages, burned them, and massacring the entire populations including women and children. There were insufficient German troops to occupy the entire territory densely enough to prevent such raids. Emergency detachments usually came too late.

Behind the German front, severe fighting, even to the extent of employing heavy weapons, frequently broke out between the partisan groups of different camps. Such disturbances at times caused a local paralysis of Soviet partisan activity.

The very active bands of the Ukrainian Nationalist Movement (UPA) formed the strongest partisan group in the East except for the Russian Communist bands, which they fought bitterly. The UPA repeatedly offered its cooperation against the Soviet partisan bands to the German Army and asked for a German general to act as organizer and tactical leader, but the High Command of the German Army, very much to its disadvantage, continually refused these requests. Only tacit, local agreements were therefore made between the UPA and German military authorities. They proved advantageous to both parties. Sometimes the UPA would participate in fighting the Soviet bands even without any previous agreement (as in 1944 north of Lwow and at Stanislav). The UPA forces were deployed in groups of several thousands each in the rear of the Russian, as well as the German, armies. Although they fought the German political organizations and their police forces, they never fought the German troops, and they seriously harassed the Soviet Army. Not only did they severely impede its supply, they also attacked Russian headquarters and rendered them powerless by encirclement (for example, in 1944 at a Russian corps headquarters in Korosten, which had to be liberated by motorized troops). Furthermore, they incited revolts of the Ukrainian population in the rear area (in Kiev, for example), the

quelling of which required the withdrawal of several Russian divisions from the front for an extended period of time.

Although seriously disturbing German supply operations, and thereby also the conduct of battle, even the strongest partisan movement, that of the Soviets, had little influence on the over-all operations in the East. This is illustrated in the report on the protection of supply lines near Kirovograd against partisan raids (1942–43).

The Kirovograd region was administered by German civilian authorities, with the aid of municipal and regional commissioners who had their seats in the larger towns. The former town and community boundaries were retained as much as possible. The security of the region was the responsibility of the regional military government officer (*Feldkommandant*) and the local military government officers (*Ortskommandant*) under him. It included mainly the security of railroads, the two important supply routes (express highways IV and IVc), and the Bug bridges at Pervomaisk and Voznesensk. Two local defense (*Landesschuetzen*) battalions were available for these tasks.

Except for occasional minor sabotage acts against railroads, telephone lines, etc., by the native population, the area administered by German Regional Military Government Office (*Feldkommandantur*) 509 remained absolutely undisturbed throughout 1942, and substantial progress was made in the work on express highways IV and IVc. Not until March of 1943 did a sizable partisan group invade this area.

Of the railroad lines in this region, the one with the branch line to Dnepropetrovsk and Krivoi Rog, via Aleksandriya–Pyatikhatka, was the most vital from the military as well as the war-economy standpoint. The important junction and marshalling center of Znemenka was the point most vulnerable to sabotage operations. Had that place been destroyed, the entire supply of the front, and shipments of badly needed war materials destined for Germany, would have become seriously endangered for a rather long time. The terrain was level and flat, with little vegetation. It was partially steppeland. Except for a fairly large, dense patch of forest between Znemenka and Tsibulnos, only smaller strips of woodland limited the visibility along the railroad line. Features extremely favorable for sabotage operations were the extensive fields of sunflowers, growing taller than a man, and to a lesser degree, the grain fields.

Raids on the railroad line were always carried out in insidiously cunning ways by bands which found refuge mainly in the woods north of Znemenka and which were willingly aided by elements among the population of the neighboring villages. Organized into small combat patrols (*Troikas*), and carefully protecting their lines of withdrawal, they blew up railroad tracks, damaged control towers and signal installations, and terrorized the native railroad personnel. The *Troikas* disappeared upon the completion of their work of destruction, as a rule without having suffered any losses. Their activities were directed from a higher level, and they were regularly supplied with weapons, communications equipment, explosives, maps, medical supplies, etc., which sometimes were dropped by aircraft. The explosives consisted of demolition charges, mines, artillery shells, or improvised infernal machines.

The weapons of the *Troikas* were generally machine pistols, daggers, and rifles. The members wore civilian clothes, but some were dressed in uniforms of the German Army, Luftwaffe, or political organizations.

In March 1943, a partisan group, at first numbering from 200 to 300 men, with a few women as medical and signal personnel, invaded the region of Feldkommandantur 509 at Chigirin (35 miles west of Kremenchug). It was very ably led and highly mobile in its conduct of battle. The group used sleighs in the winter and requisitioned horses during the muddy period. For 3 weeks they roamed through this region; raided agricultural centers, sawmills, and other plants; killed the managers of the agricultural centers as well as the German harvest control officers; liberated prisoners of war; and disrupted rail traffic at Sosnovka. The partisans sought shelter in villages adjacent to woodlands. Horses and vehicles were sheltered in steep ravines to project them against artillery fire. The expertly arranged security and reconnaissance measures precluded the possibility of surprise raids by German troops. Orders and instructions were received by short-wave equipment which was kept in a suitcase. Because of their well-functioning intelligence machinery, searches of woodlands and villages for the smaller sabotage teams of partisans were almost never successful. The Ukrainian community authorities' lists of inhabitants were seldom in order, making identification of the inhabitants of a village very difficult. It was, therefore, found practicable to chalk the names of the residents of each house on the front door.

In combatting the partisans, railroad stations, control towers, wooded zones, and bridges were focal points of security. Shifting German reserves by motor vehicles was planned for a quick reinforcement of the defenses. All places that had to be defended were converted into strong points. Arrangements had to be made in buildings to permit firing from various floors, and machine gun emplacements with flanking and alternate firing positions had to be installed. Plank walls had to be erected for protection against fragmentation, and windows had to be provided with gun shields and embrasures. Fire steps, ammunition lockers, communication corridors, and observation posts had to be established. Telephone lines were laid so as to be protected

as much as possible against gun fire, and supplemented by optic and acoustic alarm signals. In the vicinity of each German strong point, the terrain was cleared of obstructing vegetation for a distance of about 1,000 yards in each direction along the railroad line; this cleared area extended some 300 to 400 yards from the tracks.

The goal of all these precautions and preparations was to assure the smooth functioning of rail traffic. In addition to military security, the railroad lines were frequently inspected by employees walking along the tracks, and patrolled by handcars, or locomotives pushing freight cars ahead of them. The speedy formation of "alert" units for fire fighting, and the procedure of transporting them by motor or rail had to be planned and practiced in drills. The use of armored trains, or the addition to trains of cars carrying troops, proved to be effective methods of antipartisan defense.

The Germans soon realized that their military forces were not sufficient for the manifold tasks of railroad security. To ease their burden, local inhabitants were assigned to the troops as so-called voice-alarm sentries. Upon spotting partisans, these sentries were to shout the information to their neighboring guard posts, stationed at a distance of five hundred yards, but were not to fight. For that reason the native sentries were unarmed. Their reliability varied, since they feared the cruel reprisals of the partisans against themselves and their families. Organized indigenous forces, some of which were employed for railroad defense, likewise functioned only when they were heavily intermixed with German units. The German regional defense units were not properly armed. Their equipment, too, was completely inadequate. For reconnaissance, the *Fieseler-Storch* (liaison aircraft) proved equal to all demands. The evacuation of villages directly adjacent to railroad lines, and the establishment of so-called death zones, within which any civilian would be shot on sight, were found to be appropriate measures.

PART SIX
CONCLUSIONS

The success of any armed force flows from a sum total of measures not only in the military field, but also in politics, national indoctrination, economics, and other spheres, which in their entirety decide the outcome of a war. They all must therefore be analyzed and weighed against each other if one would find the ultimate causes of victory or defeat. Only the product of intensive studies would form a positive basis for the evaluation of an armed force in a past war, and thereby offer clues as to its potential in a possible future conflict.

In the preceding pages, only the military measures—in themselves important—could be taken under scrutiny. But this study, presenting German experiences as well as German views, throws light on many significant aspects that permit readily applicable conclusions to be drawn.

Not the success alone, but also the circumstances under which it was achieved form the standards by which an armed force is to be evaluated. The Red Army was successful in the last war, a good argument for the proposition that in a future war, fought under equal or similar circumstances, it would again emerge victorious. The high command was good and in its hands the troops, purely as a human mass, were a useful instrument. The prime motive force behind both was communism; the final goal, World Revolution.

Manpower and matériel were abundant, and may be presumed to be abundant in the future. The Soviets gained a wealth of war experience on the basis of which to train their leaders and masses in up-to-date methods. They also have the means to maintain quantity and quality of their equipment at a high level. Accordingly, one might think the final conclusion from this study and from the description of climatic conditions in the U.S.S.R. has to be, "Hands off Russia; the Russian combination of mass and space cannot be overpowered!"

That, however, is not the case. It should not be forgotten that much that might be said about Russia and the Russian had to be condensed here as well as in other studies. The terrain difficulties and the characteristics of the Russian soldier had to be described one after the other in such a way that both could easily be overestimated.

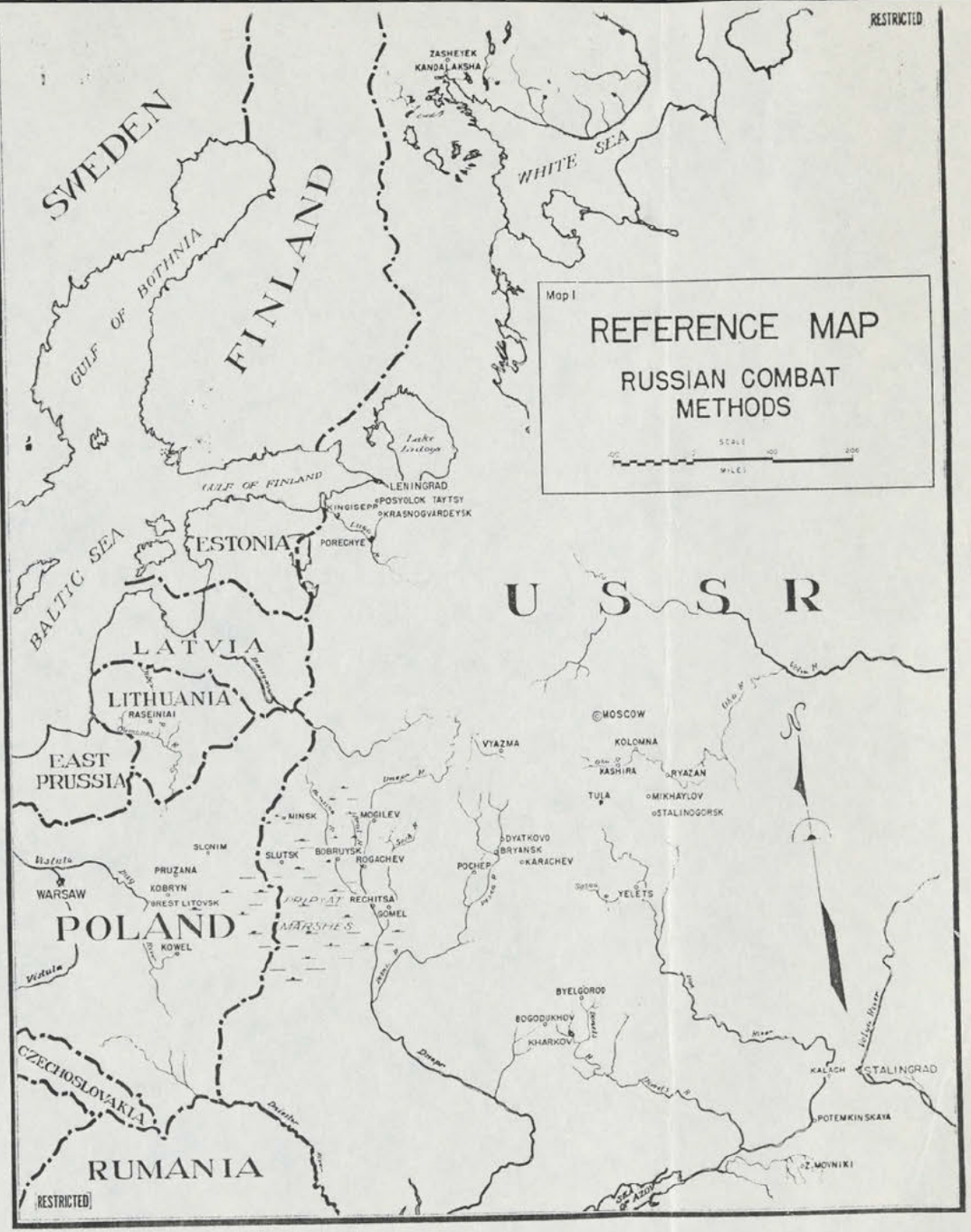
Despite Russia and the Russian, despite cold and mud, despite inadequate equipment and a virtually ridiculous numerical inferiority, the German soldier actually had a victory over the Soviets within his grasp.

The prerequisite for a successful war against the U.S.S.R. is a systematic preparation for the undertaking. One cannot provoke such a conflict and expect to carry it through in a spirit of adventure. The equipment of the soldiers and the total amount of matériel must meet the requirements of Russian terrain at all seasons. This is a question of industrial potential which, by applying the experiences gathered in the last war, is not difficult to solve.

Training, tactical as well as physical, must comply with the above-mentioned peculiarities of combat against Russia and on Russian soil. Training aimed at imparting toughness, independence, and willingness to assume responsibility, and the molding of self-reliant individual fighters, as well as leaders who are willing to take chances, are the most essential points in this respect. Strict discipline is an additional fundamental condition for every one who fights in Russia. Even the best athletic background is insufficient to meet the severity of this test. And, last but not least, the soldier must have an inner conviction—the indomitable will to prevent the Russian Moloch from devouring the world.

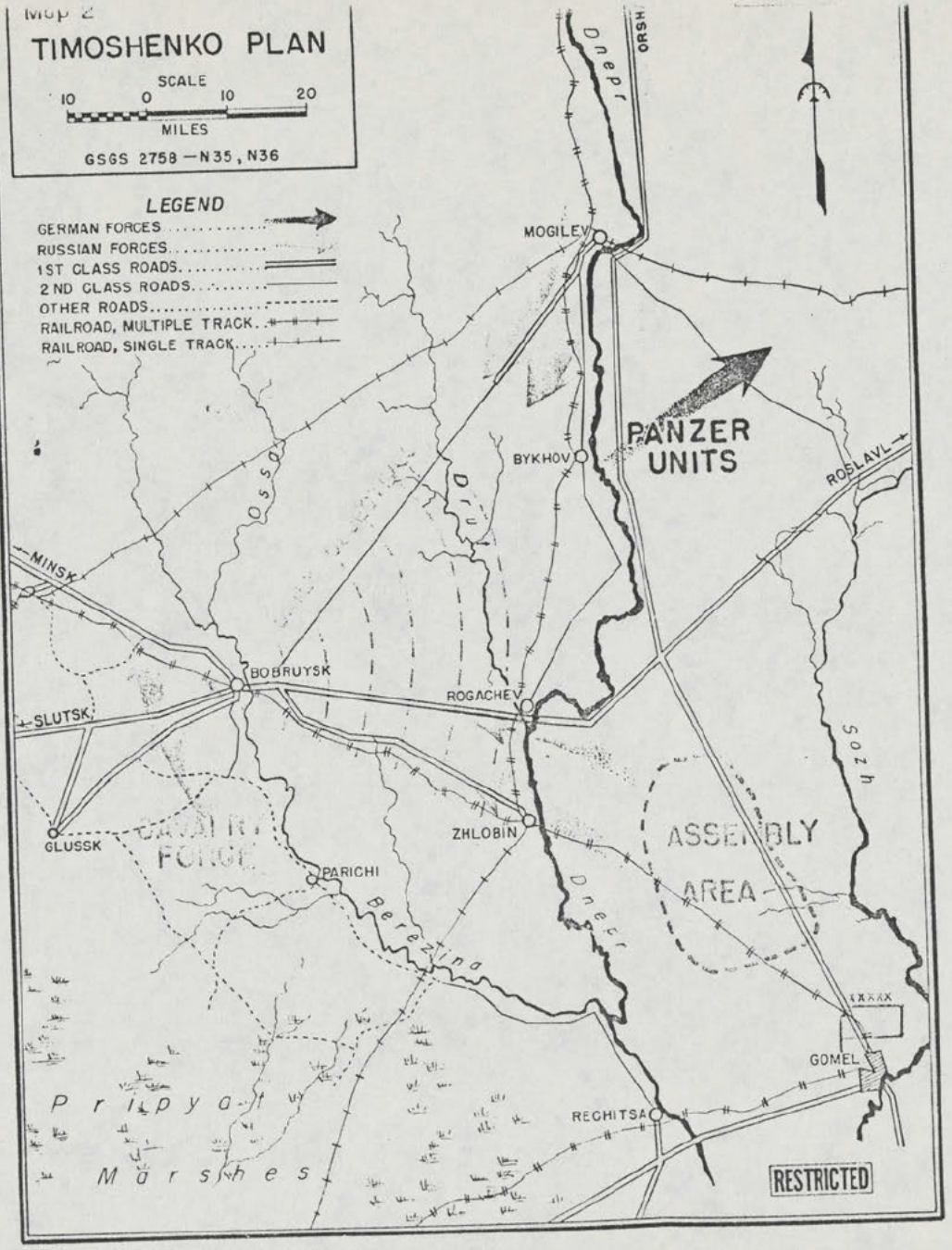
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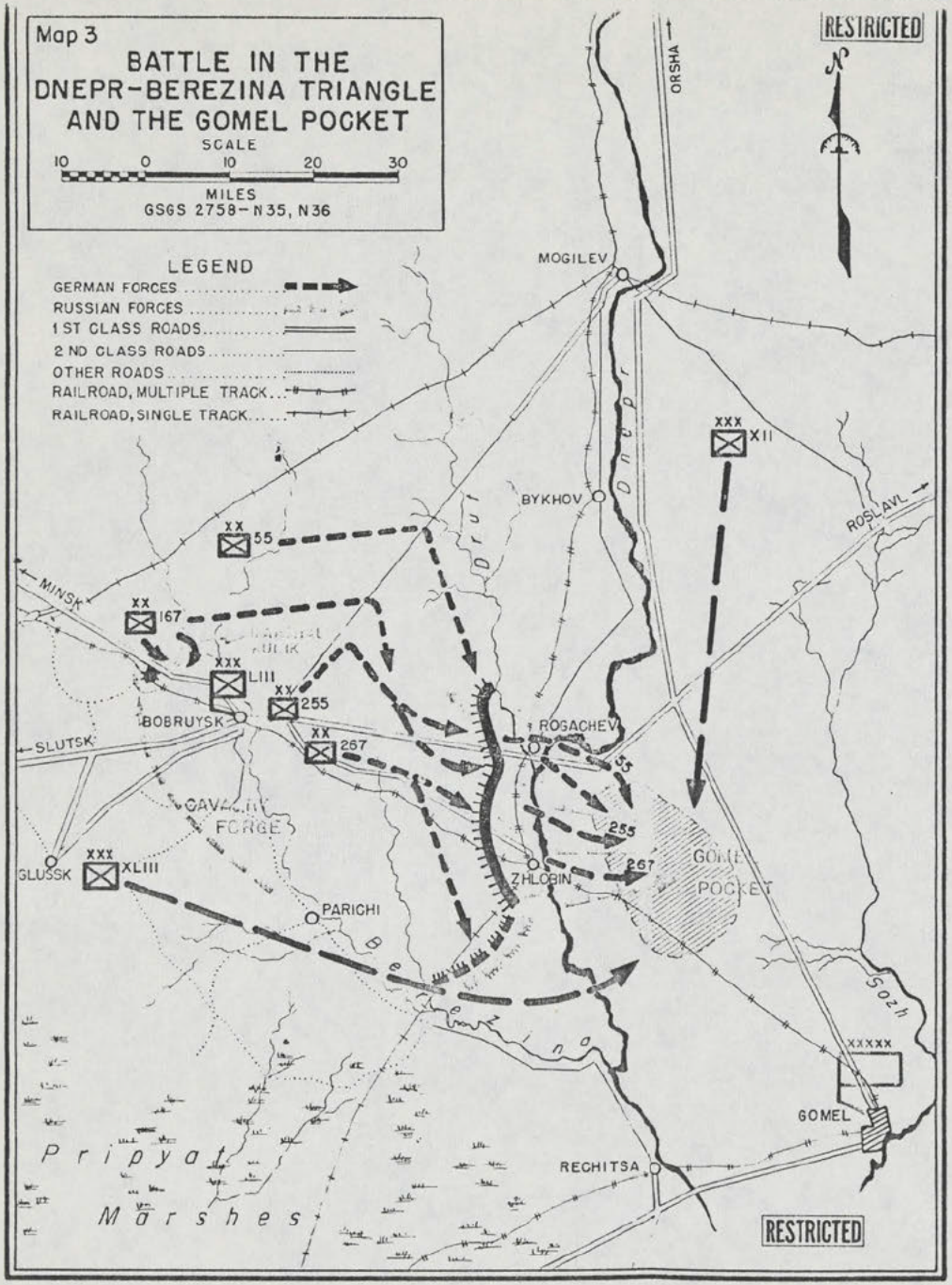


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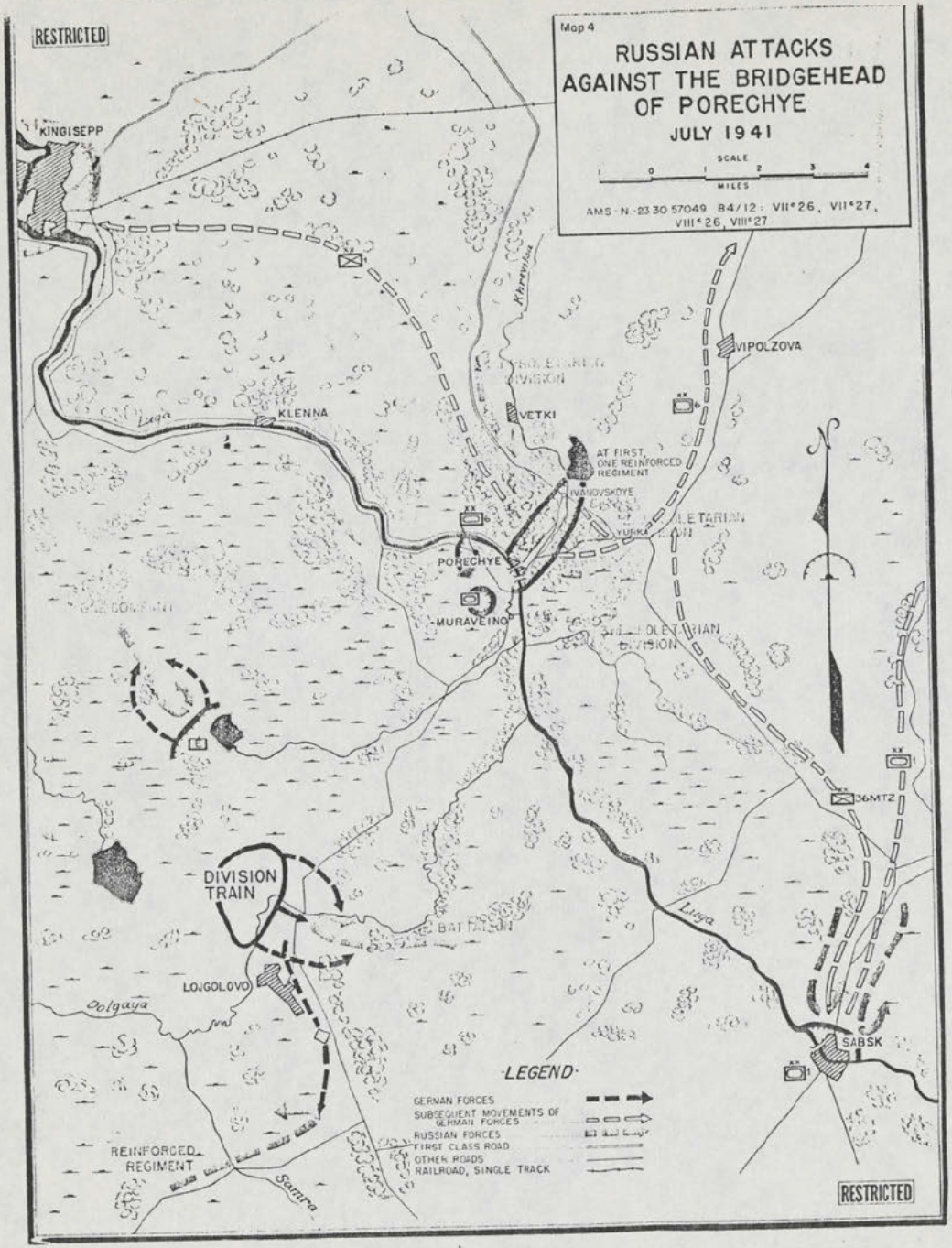
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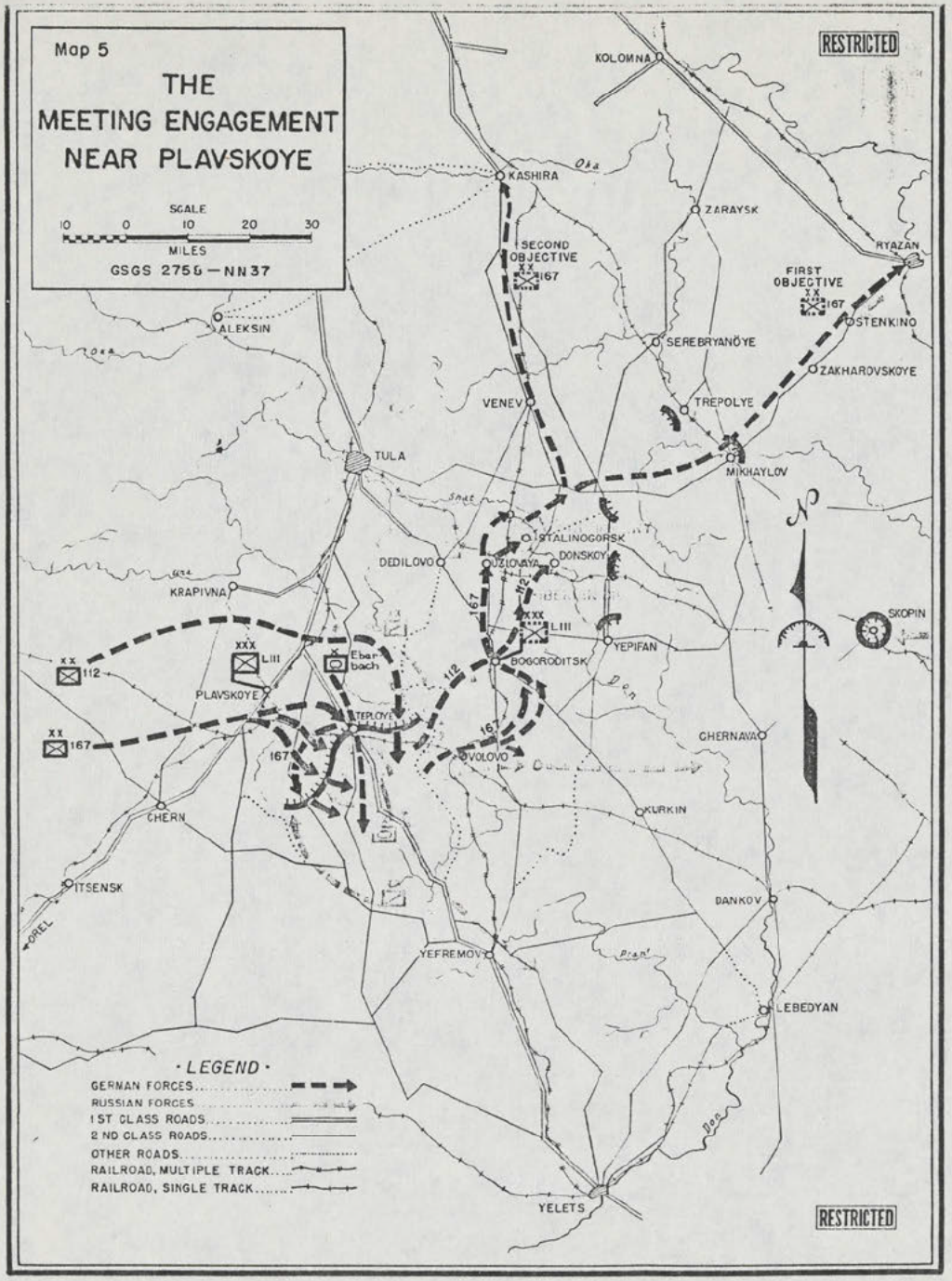
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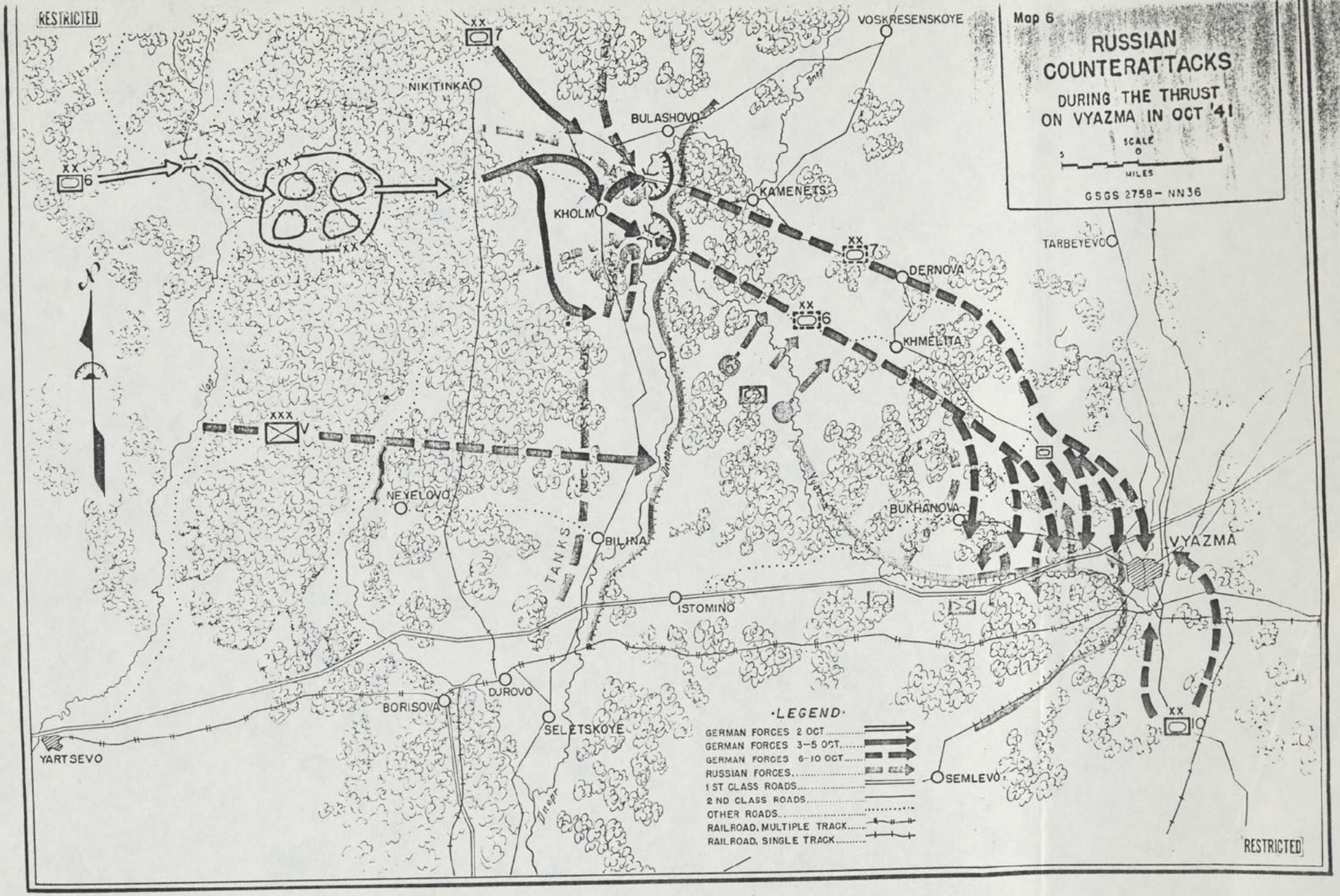
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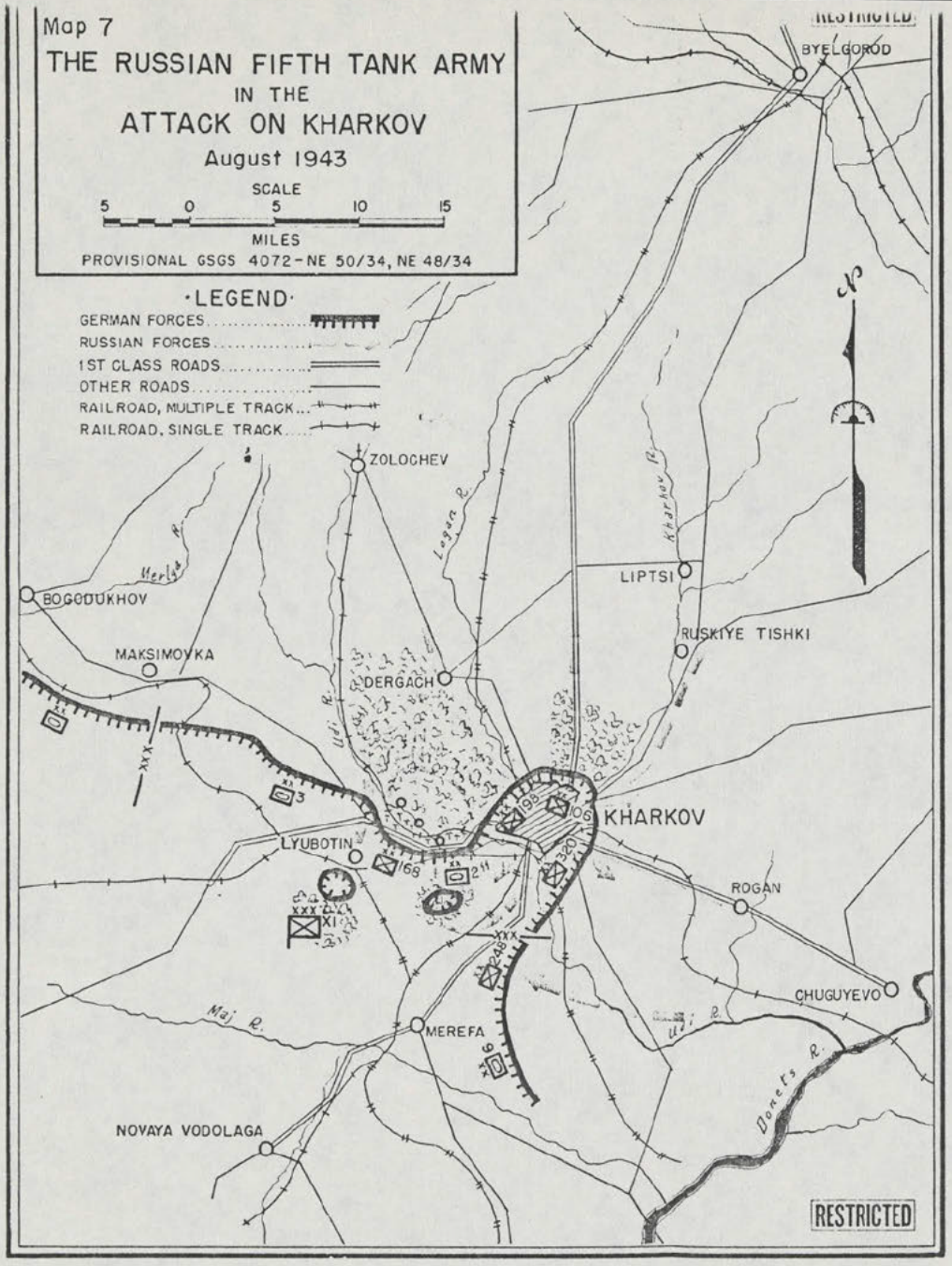
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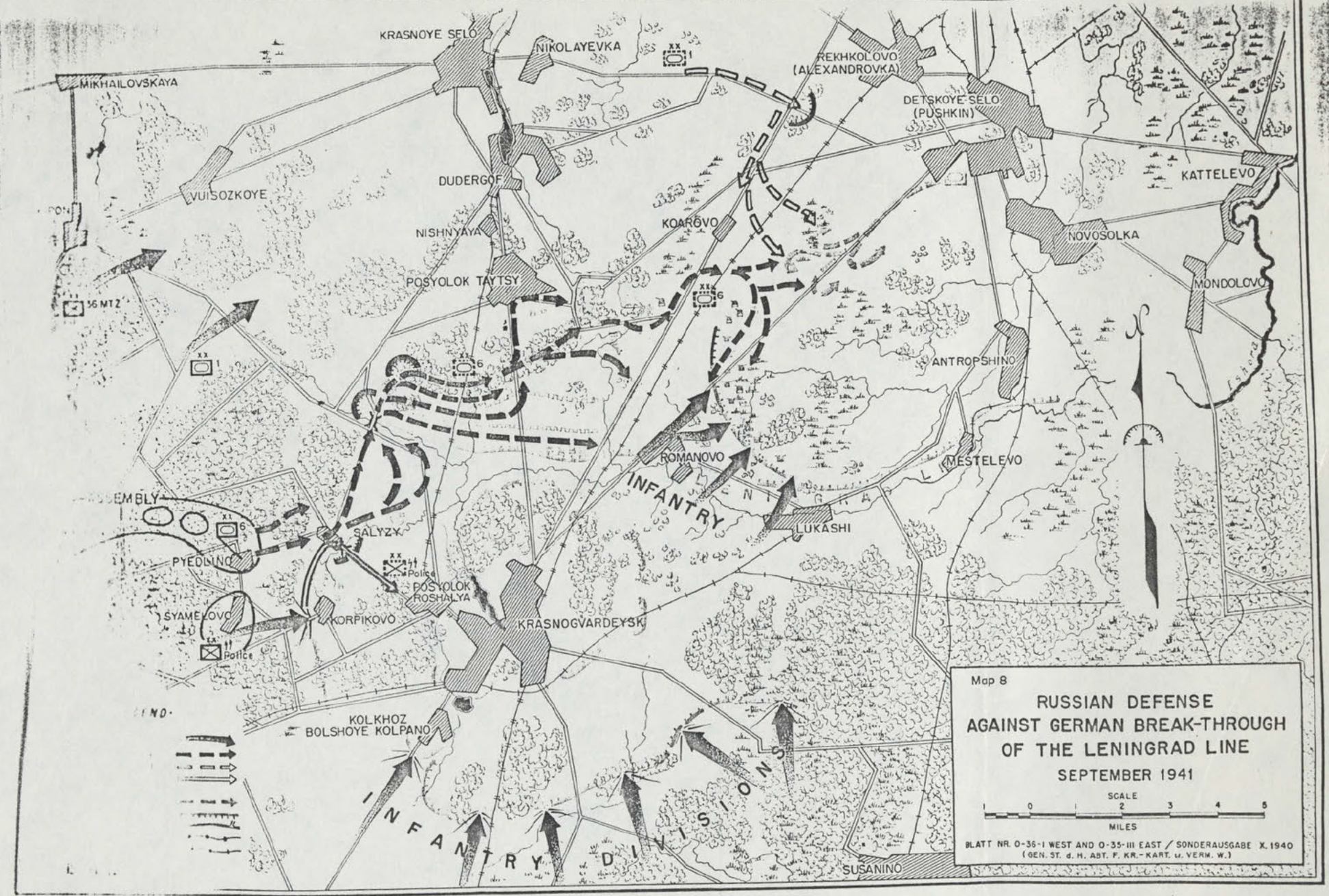
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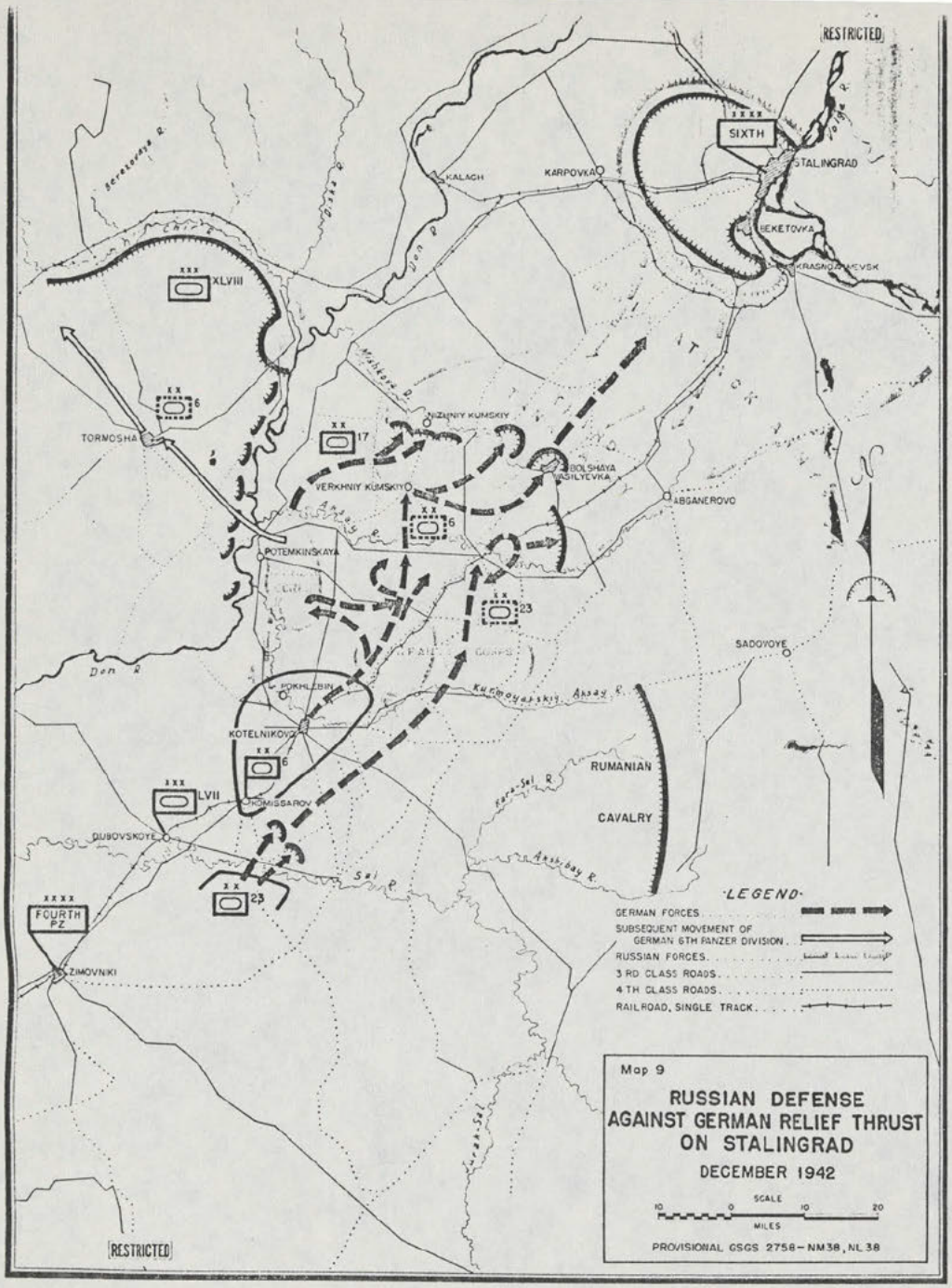
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NIKOLAYEVKA
REKHKOLOVO (ALEXANDROVKA)
DETSKOYE SELO (PUSHKIN)
MIKHAILOVSKAYA
DUDERGOF
VUISOZKOYE
NISHNYAYA
KOAROVO
KATTELEVO
NOVOSOLKA
POSYOLOK TAYTSY
MONDOLOVO
ANTROPSHINO
ROMANOVO
MESTELEVO
INFANTRY
LUKASHI
SALYZY
PYEDLINO
POSYOLOK ROSHALYA
KORPIKOVO
KRASNOGVARDEYSK
KOLKHOZ BOLSHOYE KOLPANO
INFANTRY DIVISIONS
SUSANINO
Police
Map 8
RUSSIAN DEFENSE
AGAINST GERMAN BREAK-THROUGH
OF THE LENINGRAD LINE
SEPTEMBER 1941
SCALE
1 0 1 2 3 4 5
MILES
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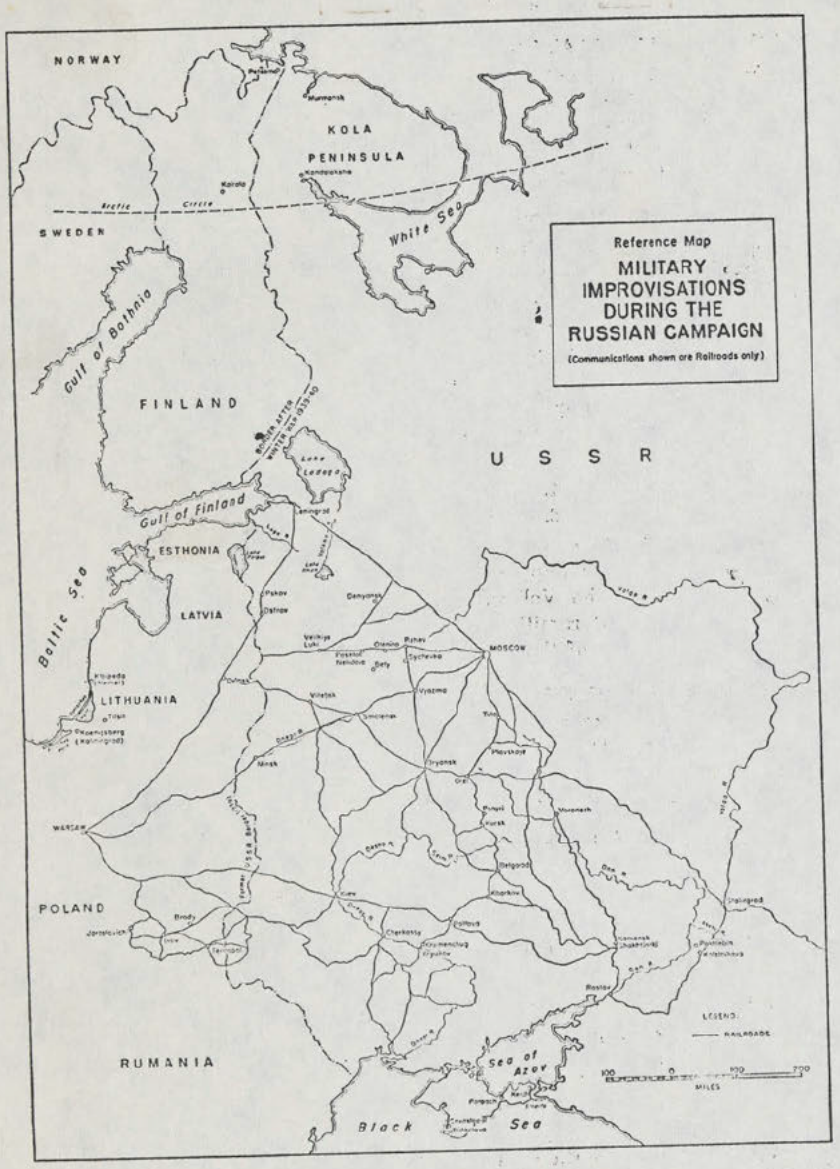
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MR BOYD

AS PROMISED. SORRY IT TOOK SO LONG. TOOK SOME LEAVE.

LTC JACK MATHER
XO, DAMO-TR
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PART ONE

INTRODUCTION

The art of war involves the correct estimation and careful weighing of one's own as well as the enemy's capabilities and is marked by the conduct of military operations in a manner promising the highest degree of success. Success in war can be achieved only if the military commander employs his resources with correct timing in suitable terrain and in a way that guarantees maximum effect.

The conduct of war is subject to the same imperfections and frailties as any other field of human endeavor; for this reason emergencies which, of necessity, lead to improvisations arise from time to time in every war and in every army. Faulty planning, unsatisfactory performance of matériel, and violations of basic principles of warfare cause deficiencies which can be alleviated through improvisation but can only be overcome by sacrificing time, space, and strength. Blunders are made in every military sphere, in all places, and on the highest as well as on the lowest level. No wonder that such blunders, oversights, and frictions entail improvisations of all types, from the simplest to the most elaborate, from the strictly temporary to the chronic.

By dint of its long duration and ever-widening scope, World War II created a persistent state of deficiencies in the German Army which forced the military agencies to introduce a multitude of improvisations of all types. Insufficiently prepared for the campaign in the East, for example, the Army was faced with a great calamity as early as the muddy period and winter of 1941–42. Top-level staffs and field forces alike were forced to improvise extensively. As the campaign wore on and the German military potential continued to decline, improvisations of the widest variety became increasingly prevalent. Toward the end of the war the ratio of strength between the German and Russian Armies became so disproportionate that improvisations, especially in combat operations, were rampant. Finally, the entire conduct of war was one great improvisation.

The present study lays no claim to comprehensiveness, but even this fragmentary account may show the main characteristics of German improvisations and the part they played in military operations. The many separate examples are presented along functional lines, and the material is subdivided into tactical, logistical, technical, and organizational improvisations. Other bases could have been adopted. Some readers may be interested in analyzing the German improvisations in terms of their causes, or of their inevitability, or even chronologically as indicators of the extremes to which an army fighting Soviet Russia was put.

PART TWO

TACTICAL IMPROVISATIONS

As the pillar of Germany's military might, the Army had to bear the brunt of the fighting during World War II. The heartbeat of the Army was at the front, where deficiencies and shortages of any kind were immediately felt. Improvisations and expedients introduced at the front had to show quick results because, in the face of the enemy, time was of the essence. With the territorial expansion of the war, tactical commanders frequently became responsible for areas that they were unable to control with the troops and matériel at their disposal. Resources were particularly taxed whenever the forces suffered heavy casualties for which replacements could not be expected to arrive for a long time. High and low echelons alike were therefore very often forced to introduce improvisations to solve their problems as well as possible. Their efforts were concentrated on three types of tactical improvisations—the formation and commitment of combat staffs and units in sudden critical situations, the employment of units for missions outside their normal scope, and the adaptation of tactics to unexpected situations. A combination of two or more tactical improvisations had to be introduced in many cases.

Chapter 1

The Offensive

I. The Elimination of Russian Forces in a German Rear Area

1. *The Blitzkrieg Bogged Down in Mud* (Map 1)

On 22 June 1941 the 6th Panzer Division moved out of the Tilsit area as part of a provisional panzer army. In true blitzkrieg manner it rolled across Lithuania and Latvia within a few days, overran every enemy position in its way, broke through the Stalin Line, crossed the Dvina River, and opened the gateway to Leningrad on the Luga River—all within three weeks from its day of departure. This 500-mile trip led through dust and sand, woods and swamps, and across rivers and antitank ditches. Leningrad was within sight.

At this very time the division was called upon to assume the leading part in the German attack on the central front. Once again the division moved with lightning speed and covered 600 miles to join Army Group Center. On 10 October 1941, the first day of the offensive, its 260 tanks made a deep penetration into the enemy lines near Vyazma. Ten days later the Russians were encircled and the mission was accomplished.

The 6th Panzer Division was then to lead the attack on Moscow and take the city. Its spearheads were approaching the objective when nature suddenly put a protective wall around the Russian capital. The autumn mud brought the blitzkrieg to a sudden end. It swallowed the most valuable equipment. The cold winter continued the terrible destruction. Then came the German withdrawal during which every tank, every antitank gun, and almost every artillery piece of the division had to be sacrificed. Enemy attacks and cold weather caused innumerable casualties during rear guard actions. When the once-proud 6th Panzer Division finally assembled its forces in January 1942, all that remained were 57 riflemen, 20 engineers, and 3 guns.

After this terrible hemorrhage the remaining staffs and the supply and rear elements were assembled forty miles behind the front line for the purpose of reorganizing the division. Every day a few tankers, artillery men, and others who had escaped the carnage trickled back to the divisional area. As soon as they arrived they had to help guard the highway and railroad between Smolensk and Vyazma, the life lines of Fourth and Ninth Armies, against attacks by Russian cavalry, parachute troops, and partisans who had penetrated deep into the rear areas. The enemy first advanced southward and then turned east toward the railroad and highway connecting Vyazma with Rzhev in order to cut off the supply of Ninth Army. The field hospitals and motor pools of several divisions were under attack, and two airfields were in immediate danger. Far and wide no combat troops were available. The over-all situation did not permit the release of even the few remnants of 6th Panzer Division to serve as cadre for an alert unit which was to be improvised in the rear. By the end of January 1942 the situation was so tense that Marshal Stalin felt justified in announcing the impending annihilation of two German armies in the biggest battle of encirclement in history. But events were to develop differently.

2. *Desperate Improvisations*

Emergency alert units had to be improvised and committed immediately even though no combat cadres were available. Actually the 6th Panzer Division had not the necessary service personnel [illegible] Ninth Army therefore issued

orders that the division assemble immediately all the service and supply units, as well as construction and roadbuilding battalions in the army rear area, and intercept all stragglers. Between Sychevka and Vyazma a defensive front was to be built up in the most expeditious manner. (Map 2) Even the Luftwaffe units at the Novo-Dugino airfield were subordinated to the division commander for use in ground combat.

Within twenty-four hours the staffs of all units now subordinate to 6th Panzer Division were busy intercepting every available officer and man in their respective areas and forming emergency alert units of varied strength and composition. Special care was taken that men from the same unit remained together. Depending on their number, they formed squads, platoons, or companies under the command of their former officers. Whenever possible emergency alert units of similar composition were organized into battalions and two or more battalions were placed under the command of one of the previously mentioned staffs. Each unit was to keep the weapons and supplies it had salvaged from its parent unit. This procedure was a guarantee against unnecessary splitting up of available manpower and resources. It seemed a better policy to commit units of differing strength and composition rather than to destroy unit integrity by equalizing numbers. The strength and composition of individual units was taken into account in the assignment of defense sectors.

Most men were armed with rifles. Each company had one or two machine guns, and some of the battalions had a few mortars and small antitank guns which had been procured from ordnance shops in the vicinity. Initially only one recently repaired artillery piece was available, but the flow of weapons and equipment improved daily because the maintenance and repair shops made a maximum effort to send matériel to the front. Numerous convalescents and men returning from furlough were employed along the rapidly forming front facing west.

The newly formed units had to be committed without delay wherever the danger was greatest. Frequently this baptism occurred on the very day of their initial organization. If possible, the alert units were committed in a sector where they could protect their own service and rear installations, a task with which they were only too glad to comply. For the same reason Luftwaffe units were assigned to the defense sectors that covered their own airfields. The remaining gaps were closed by alert units which had their assembly area farther away from the new front.

The most important sectors of the forty-mile front were occupied on the first day, gaps were filled in on the following day, and by the third a continuous though thinly [illegible]

By the end of the first week it was held by 35,000 men. Small general reserve units were improvised by that time, including one platoon of five damaged tanks with limited mobility.

By the tenth day the division had improvised a full-strength, completely equipped motorcycle company utilizing men returning from furlough and convalescents. Several armored reconnaissance cars were turned over to this mobile reserve which could be moved to any danger spot along the *Rollbahn* [*Ed*: road designated as a main axis of motorized transportation] that ran parallel to and closely behind the front. This force was also versed in skiing and carried skis on the motorcycles in order to have cross-country mobility even though the snow was three feet deep in some places. This was a crack unit especially suited for local attacks and commanded by battle-tested officers.

The Luftwaffe signal battalion of VIII Air Corps at Novo-Dugino laid the necessary telephone lines and connected them with the air field switchboard. During the organization of the new front enemy attacks on the airfield and the adjacent sector to the north were repelled by alert units. In the central sector the enemy occupied several villages before the arrival of alert units. On the southern wing he occupied other villages and stood only a half to one mile from the highway which he interdicted with his mortars. At night enemy ski units infiltrated through the German lines, which initially were not continuous, and disrupted the supply of Ninth Army at several points between Vyazma and Rzhev. In view of the extreme cold and deep snow, the front line was almost exclusively a line of strong points based on villages. Although repeatedly under attack, the center of this line held from the outset.

Thus, the improvised front facing west served its initial purpose. Within a few days the whole sector threatened from the west was protected by alert units. Moreover, contact was established with the forces that fought in an arc around Rzhev to the north and with similarly improvised Fourth Army units in the south. However, the *Rollbahn* and the railroad were so close behind the front line that the continuous disruptions became unbearable. Furthermore, the slightest setback of the improvised units could result in the complete blocking of the traffic arteries by the enemy. This handicap could only be remedied by advancing the German outposts farther to the west. This involved a winter offensive in extreme cold and deep snow with improvised units which were without training in offensive operations. Yet, it had to be done. The operation could not be an offensive in the usual sense, let alone a blitz- [illegible] necessarily deviated from the

conventional pattern and had to be especially suited to the peculiarities of the prevailing situation and the forces available.

3. *The Snail Offensive* (Map 2)

At the beginning of February 1942, on the eighth day after the initial formation of the new front, the sector commanders were called to a meeting, informed of the necessity of an offensive, and indoctrinated in the combat methods to be used. The mere thought of starting an offensive with their motley units caused all commanders to raise serious objections which could be fully expressed by one single word: impossible. Only a detailed explanation of the tactics to be employed, for which the division commander coined the term "snail offensive," gradually dispelled the numerous objections which were perfectly valid from the conventional military standpoint.

First of all, it was pointed out to the commanders that time was not an important factor in this offensive. The speed of a snail would be sufficient. In selecting the place of attack they were to proceed like a snail which would move only to a place where it could find a worthwhile objective without incurring any danger. The method of advance was to resemble that of a snail slowly groping its way and immediately retracting its feelers or changing its direction whenever faced by an obstacle. Any setback must be avoided because it would discourage the weak German forces and tie them up for a long time just as a snail withdraws into its shell in a dangerous situation and does not dare continue on its way for quite a while. Nor were the commanders to forget the shell of the snail which affords safety and shelter in case of danger. Despite all precautions, however, the sector commanders had to keep in mind the rewarding objective at all times, exactly as a snail would do in the same situation.

This comparison served to illustrate the basic idea of the combat methods to be employed in the snail offensive. The practical application of this doctrine was subsequently explained at the site where the first offensive actions were to be launched. The objective of the snail offensive was to push back the Russians far enough to place the supply lines of Ninth Army beyond their reach. This meant that a line favorable for defense was to be reached which followed the edge of the vast wooded marshes. All villages in the fertile region to the east of it therefore had to be taken from the enemy. A secondary but important intention was to deprive the enemy of valuable shelter and sources of supply and to make these villages available to the German troops. This would be a [illegible] blow to the enemy since these were only [illegible]

ages in the marshy forests, and the entire enemy force in rear of Ninth Army was beginning to suffer from supply iculties. After the Germans launched a successful panzer ack on Bely, the Russian force was practically surrounded German units except for a narrow pathless strip across the nt.

The final objective of the 6th Panzer Division was to roll k the enemy to a distance of ten to twenty miles from the *lbahn,* but this plan was at first not revealed to the commanders of the various sectors. The success of the initial operas was of paramount importance.

First of all, the central forces were ordered to eliminate deep enemy wedge in the German lines. The enemy salient luded three villages held by Russian security detachments. ee Map 2, Arrows ①.) There an initial victory should be y to obtain. The attack was not to start until everything d been so well prepared that success could be expected th certainty. The three villages could be observed from high German positions and dominated by cross fire from o sides. The enemy dispositions were under constant observation. The foremost village was held by the strongest enemy tachment, the two farther to the rear by smaller ones. A atoon of volunteers led by an experienced officer was to sneak at night on each of the small villages, effect a penetration om the rear, make a surprise raid at dawn, and annihilate e enemy. Surprise was achieved, two villages were taken and e large one in front was cut off. Enemy attempts to break t during daytime were stopped by fire. At dusk the German rces in both villages were reinforced, the large village was rrounded, and the enemy force which attempted to break it under cover of darkness was captured. When all three llages were in German hands, they were immediately prepared r defense. Farther to the south another Russian strong point as taken by similar tactics. A strong covering force with eavy weapons remained in the old main line of resistance to op any possible reverses. The main line of resistance was oved forward only after positions had been constructed in ie frozen ground and supply and communication routes cleared f snow. As long as the enemy showed intentions of counterttacking, strong reserves were positioned behind the danger oints and no further moves were initiated.

Similarly the initial operations in other sectors were adapted local conditions and carried out at irregular intervals. The rst week of the snail offensive resulted in the occupation of villages and the capture of numerous prisoners.

Losses on the German side were negligible. Most important was the confidence the German units gained in this combat method.

Gradually more complicated missions could be undertaken. However it remained essential to attack in the most effective manner and to reach the objective without becoming involved in a heavy engagement. Although the Russian forces in this sector were better trained and equipped, their supply of ammunition was limited and they were numerically too weak to organize a continuous line of defense. Their strong points were secured by outpost lines. The best method of overcoming these obstacles was to capture the villages where the outposts were located in order to isolate each main strong point until its encirclement was almost completed. Then the enemy troops usually abandoned their strong points voluntarily.

Bogdanovo, a village situated in dominating terrain on the southern wing, was one of the most important enemy strong points. From here the Russians frequently made thrusts into the adjacent sector to the south, penetrated to the *Rollbahn,* and stopped all traffic. In order to eliminate these inconvenient disruptions, the Fuehrer Escort Battalion, a crack SS unit which normally served as Hitler's personal bodyguard, was reinforced with heavy weapons and artillery and moved into the adjacent sector to take this enemy defense anchor by assault. After a short briefing and hasty preparations the battalion launched a frontal attack in the orthodox manner, forced the weak outposts to withdraw, and advanced almost to the edge of the main strong point. There the enemy, counterattacking from all sides and inflicting considerable losses, pushed back the battalion and encircled one company. The company was finally liberated under great difficulties, but the attack was not repeated because of the heavy casualties.

After this failure Ninth Army shifted the boundaries to include Bogdanovo in the 6th Panzer Division sector and ordered the division to capture it. Within a few days the snail offensive procedure scored another success by almost completely isolating the enemy strong point. When the divisional reserves attempted to close the ring, the Russians, though raked by heavy German fire, hastily evacuated the strong point in a daylight withdrawal. The village was immediately occupied and held against all later counterattacks.

In one month the snail offensive achieved the capture of eighty villages, and advanced the front line from five to eight miles. The principal effect, however, was to put the enemy on the defensive along the entire front, making thrusts in the

direction of the *Rollbahn* and railroad out of the question. More and more battle-tested soldiers and reconditioned weapons had meanwhile been made available and supplied to the front. The number of tanks increased to eight, the artillery pieces to twelve. By then the operations of all units were well co-ordinated and the commanders had full confidence in the new combat tactics; thorough preparations and careful implementation of all instructions had prevented the slightest failure.

The subordinate commanders could now be granted much greater freedom for the continuation of the offensive. Division headquarters no longer interfered with details. Each sector was assigned a weekly phase line that was to be reached under optimum conditions. This line was not to be crossed without approval from division because safety considerations outweighed those of speed. Whenever the alert units ran into particular difficulties, they called upon divisional reserves which by now included a few tanks and dive bombers. All enemy attempts failed to halt the slow but steady advance of the improvised front. The snail offensive only paused in places where the enemy committed strong reserves; it started to move again immediately after these were transferred to another danger point. Since the enemy did not have sufficient forces and matériel to appear in strength in several places at the same time, he lost ground slowly but steadily. By the end of March 1942, two months after the start of the snail offensive, the Russians had been pushed back into the marshy forests and forced to relinquish more than two hundred villages.

This tactical, organizational, and logistical improvisation, a product of extreme emergency, had reached its intended objective. To go farther would have been impossible at this time because the two adjacent units had not joined the division in the offensive. The 6th Panzer Division units on the extreme ends of the sector had remained in their initial positions in order to prevent the opening of gaps in the flanks which would have permitted the enemy to infiltrate into the rear of the snail-offensive front. Ninth Army then widened the sector of 6th Panzer Division with orders to eliminate enemy interference in the adjacent areas by similar offensive action.

4. *The Scorpion Offensive*

Despite the successes obtained by the use of snail-offensive tactics in the central zone, the Germans holding the entire front facing west were still inferior to the opposing Russian forces which included some first-rate Guards units around Rzhev. It was the mission of the 6th Panzer Division to launch another

way and railroad line leading from Sychevka to Rzhev. (Map 3) The Russian outposts were located one to three miles from these essential supply routes and disrupted the traffic on many occasions.

The available forces and matériel were still inadequate for an offensive in the conventional manner. Once again it became necessary to improvise tactics. Only successive surprise attacks with limited objectives plus close co-ordination of all arms had any chance of success. Free choice of time and place for each intended thrust was another prerequisite since the issue would be in doubt if the enemy recognized the German intentions and took countermeasures. Whenever the element of surprise was lost, the objective had to be changed and the blow delivered at some distant vulnerable point. All this had to be achieved with a relatively weak striking force which was to be shifted to a different sector of the front immediately after each thrust. The tactics to be employed thus consisted of a well co-ordinated but flexible system of limited objective attacks. They could best be compared to a series of paralyzing stings a scorpion would inflict in a life-and-death struggle against a physically superior opponent.

Taken individually, the various lunges were not novel. A frontal break-through thrust in the center was followed by a double envelopment farther to the south. Only a few days later the same combat forces attacked through a deep forest to the north, accomplished their mission, and were immediately replaced by reserve units. Before the enemy had caught his breath, he was surprised by a deceptive thrust into his flank. Diagonal jabs at the northern and southern ends of the front consolidated the territorial gains achieved by the preceding operations. While the German forces suffered only slight losses, the enemy was prevented from seizing the initiative during the spring of 1942. He was dislodged from the favorable terrain he held and was forced to withdraw his forces approximately 12 miles along a 75-mile front. The German supply lines from Vyazma to Rzhev were finally secure, and a base of operations was acquired for the summer offensive which led to the annihilation of all Russian units holding out in the rear of Ninth Army.

5. *Cavalry Brigade Model in Operation* SEYDLITZ (Map 3)

The Russian elements that had broken through the German lines during the winter of 1941–42 and threatened the German supply lines during the spring, succeeded in gaining a foothold in the extensive, impassable, primeval forest swamps between Rzhev and Bely. Constantly receiving reinforcements of infantry,

60,000 men in the rear of Ninth Army and forced the Germans to fight on two fronts. They tied down strong forces and increasingly menaced the army rear. Russian supply arrived by a road leading via Poselok Nelidovo toward Bely.

In order to eliminate this danger and regain full freedom of action, General Model, commanding the Ninth Army, planned Operation SEYDLITZ, a concentric counterattack which started on 2 July 1942. During the first stage of the operation the Germans, in difficult forest fighting, dislodged the Soviet forces from their deeply-echeloned positions and hemmed them into a narrow area. A quick German thrust into the Obsha valley anticipated the apparent enemy intention of breaking through the newly-formed German switch position northeast of Bely. The Russians attacked simultaneously from the inside and the outside and attempted to escape through the breach thus made. The enemy units were split along the Obsha River and encircled in two pockets. All Russian attempts to break out were frustrated. Russian forces northeast of Bely directed relief attacks from the outside toward the pockets. These attacks were also repulsed. Strong tactical reserves which the enemy brought in by forced marches via Poselok Nelidovo arrived too late. After a battle lasting eleven days Operation SEYDLITZ ended with a complete German victory.

An improvised cavalry brigade, the formation of which General Model had ordered when Operation SEYDLITZ was still in the planning stage, played a major role in this success. Its organization was unique in many ways. Since most of the terrain was very swampy or covered with extensive marshy forests, the brigade was to be organized in such a manner that it would be able to fight in any terrain and under any weather conditions. It was even to be mobile in mud.

The first organizational problem was the procurement of men and equipment. Obviously only officers and enlisted men with combat experience in the East could be selected for such a specialized unit. Moreover they had to be trained cavalrymen. None but tough, healthy, brave men who were in no way pampered and who felt a close kinship with nature could be used. Replacements from the western theater or the zone of the interior were therefore out of the question because the troops from the West were softened by the easy ways of occupation life, and the recruits from the training camps at home lacked combat experience. Even though the latter had received a certain amount of specialized training for the eastern front, these recently inducted soldiers were incapable of enduring the

individual. There was not a commander in the field who was not aware that the difference between war in the East and war in the West was the difference between day and night.

General Model therefore decided to pull out the reconnaissance battalion from each of the eight divisions under his command and place them at the disposal of the newly appointed brigade commander. This was a very favorable solution for the brigade but hard on the infantry divisions, for the reconnaissance battalions were valuable combat units and were greatly missed by their parent divisions.

a. Organization and equipment of the brigade

The organization and equipment of the brigade was as follows:

(1) A headquarters staff with one signal communication troop.

(2) Three cavalry regiments, each consisting of one or two mounted troops and three to four bicycle troops, with a total of five troops per regiment. Within a few hours all mounted troops of the regiments could be assembled and a complete cavalry regiment formed for an emergency. Each troop had twelve sections and each section was equipped with two light machine guns. Thus each troop had twenty-four light machine guns and two heavies. In addition, officers and enlisted men were equipped with submachine guns when possible.

(3) Each bicycle troop was issued two horse-drawn wagons which carried ammunition, baggage, and rations. Of course, these wagons were drawn by small native *Panje* horses because only they could master the terrain. The mounted troops had German military mounts. Mobility in mud was achieved because the *Panje* horses and wagons could pull through practically anywhere.

(4) In addition, the brigade included an engineer company, a medical company, and one motorized and one horse-drawn supply column.

(5) Tanks and antitank units were to assist the brigade whenever terrain conditions permitted. Each regiment had only six organic light infantry howitzers. Additional artillery support was also to be provided when necessary. The assistance of infantry and additional artillery units for flank protection was promised in case

b. Training and commitment of the brigade

After about four to six weeks of combined arms training, the brigade was committed south of Olenino along the Luchesa River. A so-called *Rollbahn* led from Olenino southward which, although it was supposed to be a fairly good highway, was really no more than an unimproved country road. Short stretches of corduroy road covered particularly wet, swampy sections. Only the Luchesa valley was clear of woods to approximately one to three miles in width. Large, swampy forests extended on both sides of the valley with but a few clearings of varying sizes. Small, swampy creeks flowed through the woods. Maps and interrogation of local inhabitants provided the Germans with exact information on the terrain behind the enemy lines. Once the brigade had broken through the Russian positions at the edge of the woods, it would have to contend with swampy forests ten miles in depth where scarcely a path was to be found.

A panzer division was committed to the right of the brigade with the mission of attacking along the *Rollbahn* to the south. Since the Russians rightly expected the main effort of the attack along this axis of advance, the division was faced by a very difficult task. From aerial photographs and the interrogation of deserters it was known that strong enemy fortifications such as road blocks and fortified antitank positions were situated along the *Rollbahn*. The positions farther east and west from this road were not as strongly fortified but were secured by mine fields in which there were only a few gaps. The Russians thought it most improbable that a major attack could be launched east of the Luchesa River because the Germans would be unable to move tanks up to the line of departure through the swampy forests. They also felt certain that a tank attack across the open terrain, the Luchesa River, and through the mine fields would hardly be hazarded.

Approximately ten days before the attack the brigade moved up to the line of departure. Intensive reconnaissance of the intermediate terrain began immediately with the assistance of veteran tankers. Within a short time a complete picture of the enemy positions and the intervening terrain was available. From this picture it was obvious that, after the necessary preparations, an attack with armored support was definitely feasible.

For Operation SEYDLITZ the cavalry brigade was attached to its right neighbor, the panzer division which was to advance along the *Rollbahn*. The brigade was to thrust through the ten-mile-deep forest in one sweep and, if possible, cut the Russian supply line on the north-south highway if the main body of the

batteries and one tank company with fourteen tanks were attached to the brigade for the execution of this mission.

The unit adjacent to the left, an infantry division, was not to jump off until the next day after the initial attack had been successful. For the first day the left flank would therefore be exposed. In the marshy forest terrain this was not a matter of particular concern because a small covering force would surely prove sufficient.

The first difficulties arose when the fourteen tanks had to be moved up to the line of departure through the swampy forests. Forty-eight hours before the beginning of the attack a company of engineers with power saws started to cut trees at intervals of about one yard along the edge of the forest so that the trees fell on open ground along a stretch leading through the assembly area. In a very short time and with relatively little effort a tank path was built which in effect was a corduroy road with about one-yard-wide gaps. Few branches had to be cut off the trees. For obvious reasons this road could only be used by a limited number of tanks and tracked vehicles.

A few hours after the engineers had gone to work the tanks started to move into their assembly area in daylight. This was possible because the wooded terrain afforded sufficient cover. The noise of the tanks was drowned by harassing fire and low-flying reconnaissance planes. All tanks arrived at their destination without incident. Experienced mine-clearing squads were assigned to each tank and ordered to ride on the tanks.

The attack started at 0300. During the artillery preparation the tanks started out together with the cavalry troops. Their movements were favored by a heavy fog which covered the river valley. They crossed most of the intervening terrain without encountering resistance. A ford across the Luchesa River which had been reconnoitered in advance was found to be adequate for the fourteen tanks. Enemy mine fields were immediately recognized by the experienced tankers and engineers and the lanes through the fields were found and widened. Suffering no losses, the tanks and cavalry suddenly rose in front of a completely surprised enemy. In one sweep the first and second lines were overrun and great confusion seized the Russians. The tanks had accomplished their mission. They could not penetrate any farther into the enemy-held forest without sufficient reconnaissance and additional preparation, and were therefore ordered to halt and stay in reserve. By then the cavalry had penetrated the enemy lines three to four miles.

The situation on the right was entirely different. Here the

were prepared for an attack. The German tanks ran into deeply echeloned antitank positions which were camouflaged with the usual Russian skill. The infantry also could not make headway and suffered heavy casualties in the forest fighting. The entire operation seemed in danger of bogging down.

At noon the brigade received orders to pivot toward the west with all available forces and to attack the *Rollbahn* from the east. One regiment turned to the right and thrust toward the *Rollbahn* through primeval forest swamps. At times the men sank in up to their knees. Direction had to be maintained by compass. The troops performed seemingly impossible feats and the surprise attack was a full success. By nightfall the regiment controlled a stretch of the *Rollbahn*, the pressure on the panzer division subsided, and the enemy was in an untenable position. The *Panje* supply wagons were able to move through the swamps and bring rations and ammunition to the completely exhausted troops.

On the following morning the continuation of the attack met hardly any resistance. On the other hand the physical requirements were extraordinarily high since the men had to traverse six miles of wooded swamps. Before noon the brigade emerged from the forest and a few hours later the first heavy equipment arrived. The terrain ahead extended over a wide area and Russian columns, single vehicles, and individuals could be seen moving about in wild disorder. It was obvious that the enemy command had lost control over its troops. The Russian defense lines had collapsed and the German divisions were advancing everywhere.

c. Conclusions

Even though Operation SEYDLITZ would probably have been successful without the cavalry brigade, it would have involved a much greater loss of men and equipment. During the eleven days of the operation 50,000 prisoners, 230 tanks, 760 artillery pieces, and thousands of small arms were captured. The situation of Ninth Army had been improved by the elimination of these Russian forces in its rear. The army rear area was safe except for partisan activities.

The composition of the brigade proved to be effective. The proper training for such a special mission requires from six to eight weeks with troops already experienced in Russian warfare. Before the attack the units must be in their jump-off positions for at least two weeks in order to become well-acquainted with terrain conditions through intensive reconnaissance. All

rechecked because the slightest inaccuracy can result in failure in that type of terrain.

Preliminary training in teamwork between armor and cavalry is of definite advantage. In an attack over this kind of terrain it may occasionally happen that the cavalry advances too fast. In that case the tanks must radio the cavalry to slow down because terrain difficulties prevent them from keeping up. Portable radio sets are not always reliable because of the density of the forest, and telephone communications therefore have to be used extensively. For that reason each regiment must carry more than the customary quantity of wire.

If possible every officer and enlisted man should be equipped with a submachine gun.

Rations should be concentrated; the lighter they are, the better. The American combat ration (K ration) would be well suited, particularly since it is also protected against moisture.

It would be advantageous to equip troops with rubber boots and impregnated raincoats, camouflage jackets and windbreakers, because dew causes a high degree of moisture in the underbrush. Camouflage covers for steel helmets are essential and camouflage in general is of utmost importance.

The commissioned and noncommissioned officers must be versatile and able to make quick decisions and improvise. Every officer must be able to act independently and ready to assume responsibility. Detailed inquiries addressed to higher echelons cause delays and unfavorable developments which can usually be avoided. Leaders with good common sense and a portion of recklessness are best suited for such special assignments. The scholarly type of officer who relies chiefly on maps is completely out of place.

In general, it may be said that the composition and equipment of the cavalry brigade proved effective for the special mission of advancing and attacking through marshy forests and along muddy paths.

II. Some Improvisations Used During Operation ZITADELLE

1. The Crossing of Russian Mine Fields

In preparation for Operation ZITADELLE, the German pincer attack on Kursk during the summer of 1943, XI Infantry Corps made a thorough study of the problem of crossing the extensive mine fields on the east side of the Donets. The usual procedure of sending engineer detachments to clear narrow lanes for the advance of the infantry spearheads was not considered satis-

lict heavy casualties upon engineers and infantry by concentrat- g his fire on these lanes. Several improvised methods for ercoming this obstacle were therefore under consideration.

The identification of the mined area was the first prerequisite ıce the infantry had to know its exact location prior to the ossings. This was possible because the German-held west nk commanded the Russian positions on the other side of the ver. Another prerequisite was that the infantry should be ıle to spot the location of individual mines at close range with e naked eye. In many places small mounds or depressions, y grass, differences in the coloring of the ground, or some her external marks facilitated the spotting. The engineers ıd made a number of experiments in mine detecting. In the ırly days of the war, the infantry sometimes crossed narrow ine fields after individual engineers lay down beside the mines s human markers, taking great care not to set them off by ressure. Although neither engineers nor infantry troops suf- ered losses during these early experiments, the procedure was isky and could only be applied on a small scale. It was there- ore of little consequence during the later stages of the war.

A second, more promising method that fulfilled expectations onsisted of marking individual mines by placing small flags r other simple markers next to the mines. This was done by ngineers or infantrymen who were trained in the recognition f mines. This procedure was applied repeatedly and showed etter results than the first but its large-scale use presented difficulties. The third and best method was to thoroughly instruct ll infantrymen in enemy mine-laying techniques and in spotting nines by using captured enemy mine fields as training grounds. This procedure required that all infantrymen be sent to rear ıreas in rotation and was therefore rather time-consuming.

These requirements could be met in the case of Operation ZITADELLE since the time of the attack had been twice postponed with an ensuing delay of several weeks. The divisions committed in the narrow attack zone had moved two thirds of their combat forces to the rear where the daily training schedule featured tanks passing over foxholes and the crossing of Russian-type mine fields. This training paid off since it helped the soldiers to overcome their fear of tanks and mines.

The beginning of the attack was so timed that the infantry would be able to detect the enemy mines without difficulty. All the mine fields were quickly crossed by spearheads which suffered practically no casualties. Only one battalion acted contrary to orders and attacked before daybreak, its commander being afraid

while his men were crossing the extended open terrain in his zone. In the dark, this battalion ran into the previously uncovered mine fields and the two advance companies suffered approximately twenty casualties from mine explosions. When the battalion continued its advance by daylight it had no further losses.

After the first wave had passed through, the engineers rapidly cleared a number of lanes and marked them with colored tape so that the reserves and heavy weapons could follow. Again there were no mine casualties. Only when the supply units followed the infantry through the mine fields, were some of the men and horses blown up by the mines because they were careless or tried to bypass obstacles.

How safely anyone experienced in the detection of mines could move around in these mine fields was demonstrated during a conference on a completely mined hill, attended by about twenty unit commanders and specialists. No one had previously set foot on this hill but it was the only place which afforded a good view of the terrain. During the ascent of the hill each mine was clearly marked and no accidents occurred even though the mine field was crossed in various directions.

This improvised procedure of crossing mine fields became common practice because it avoided many casualties, resulted in quick capture of enemy positions, and was therefore very effective in the Russian theater.

2. *A Flak Division Serves as Corps Artillery*

In the plan for Operation ZITADELLE XI Infantry Corps was to cover the southern wing of the panzer corps that was to spearhead the attack. For this purpose corps was reinforced by two light motorized artillery battalions and by the fully reorganized 7th Flak Division. This Luftwaffe division, composed of three regiments with seventy-two 88-mm. and approximately 900 smaller antiaircraft guns, was to serve as a substitute for missing medium artillery.

According to Luftwaffe policy the subordination of Flak officers to Army unit commanders was prohibited. The corps artillery commander therefore depended on the voluntary cooperation of the Flak division commander. This led to repeated minor frictions but worked out quite well in general.

The division's first mission was to take part in the artillery preparation under the direction of the corps artillery commander. For this purpose the division was echeloned in depth and committed in three waves of one regiment each. The first echelon was in position in the main line of resistance and closely behind

and pillboxes. In addition it had to form Flak assault detachments for antitank combat to give close support to the advancing infantry. Together with the corps artillery, the two other regiments were to shatter the first enemy line of defense and paralyze his infantry by delivering sustained concentrations. After that, elements of the first echelon, with the exception of the assault detachments, as well as the entire second echelon, were to support the advancing infantry. The third echelon was to take over the antiaircraft protection of the entire artillery area and was also to participate in counterbattery missions.

Enemy intelligence found out that the attack was to start on 5 July at dawn. The Russians laid down intensive harassing fire on the jump-off positions but this interference ceased as soon as the German artillery concentrations started. These were placed so well and the initial shock was so great that the first assault wave was able to cross the enemy mine fields, penetrate his main line of resistance without delay, and thrust a few hundred yards beyond it. Thousands of tracers fired by the numerous small Flak guns proved particularly effective. The Russians abandoned the trenches immediately and fled into their deep dugouts where the advancing infantry surprised them and had no difficulty in ferreting them out. But when the infantry reached the two-to three-mile-deep zone of battle positions prepared during the preceding months, they had to make extensive use of hand grenades in order to mop up the maze of deeply dug-in trenches and bunkers, some of which were a dozen or more feet deep. At the same time artillery and Flak fired counterbattery on enemy heavy weapons which resumed fire from rear positions, on reserves infiltrating through trenches, and on medium artillery. The third echelon of the antiaircraft division was fully occupied with defense against enemy bombers which attacked the corps area incessantly. During the first two hours they downed more than twenty enemy planes.

Within eight hours the German infantry penetrated the enemy fortification system in its entire depth and reached the railroad embankment parallel to the Donets. Suddenly a Russian counterattack supported by forty tanks threw back the German covering force from the woods on the south flank and hit the right wing division which was echeloned in depth. But the defensive fire of the divisional artillery and a concentration of all medium antiaircraft batteries stopped the enemy counterattack at the edge of the forest. Then the medium Flak was directed against

brush, and dispersed them. Repeated enemy attempts to resume the attack from this area failed without exception. Flank protection was soon restored and the threat eliminated.

On the second day of the operation, the high ground ahead was captured under the protection of Flak artillery fire; all counterthrusts were repelled. On the morning of the third day the enemy attempted to recover lost ground and counterattacked with two heavy tank brigades and motorized infantry units. The tanks overran the battle line of the German infantry and penetrated deeply, but the motorized infantry which followed was repelled. The enemy tank break-through hit the corps center behind which, however, several Flak assault detachments and numerous medium antitank guns were sited in a mutually-supporting formation. The enemy ran into this dense network of antitank defenses as well as a flank attack by thirty-two assault guns and was completely annihilated. The last enemy tank which had penetrated to a divisional command post was surprised by an assault detachment carrying gasoline cans and was set on fire. Sixty-four enemy tanks had begun the counterattack and two hours later sixty-four black columns of smoke gave proof of their destruction. Discouraged by his failure, the enemy made no further attempts at an armored break-through at any point of the corps sector even though he had plenty of additional armored units available. The improvised commitment of the antiaircraft division contributed decisively to this defensive success and the formation of Flak assault detachments proved highly effective in the destruction of Russian armor.

Chapter 2

The Defensive

I. Improvised Hedgehog Defenses

From the very first days of the campaign, the vastness of European Russia and the peculiarities of Russian warfare led to the repeated isolation of individual units and combat teams. All-around defenses and security measures were the only possible remedy. Far from being stressed, these defense tactics were frequently not even mentioned in the field service regulations. The field forces improvised them and designated them very appropriately as "hedgehog defenses." As time went on these tactics were applied more and more frequently and adopted by larger units. Their use was not confined to defense. During offensive actions advance detachments had to build hedgehog defenses as protection against enemy surprise attacks by night. For instance, during their advance through a swampy forest region in Lithuania where strong, dispersed enemy forces were reassembling, combat teams of 6th Panzer Division formed the first hedgehog positions during the initial week of the Russian campaign. Several hay barns in a major clearing were selected as the location for the divisional command post. Covered by thick underbrush, the tanks were placed in a wide circle around the barns with their guns ready to fire at the edge of the woods. In front of the tanks was an outer ring of infantry in foxholes and ditches and behind embankments which enabled the tanks to fire over their heads. Security patrols and outposts formed an outer cordon. The Russians recognized the strength of these protective measures and did not dare carry out the surprise attack they had planned. They resigned themselves to harassing the hedgehog area with tank and machine gun fire and a few rounds of artillery shells.

The hedgehog defense provided the troops with security and rest and thus passed its first major test. Before long these precautions became a routine security and defense measure for armored spearheads. The first large-scale employment of this measure occurred during the thrust toward Vyazma in October 1941 when an entire panzer division with 260 tanks spent the first night of the attack in an elaborate system of hedgehog positions in the woods. (Map 1) Forming the spearhead of a powerful wedge, the division had penetrated the enemy lines to

feated enemy divisions were withdrawing under cover of darkness. A retreating enemy corps staff sought refuge in a small isolated village in the forest which was occupied by the German divisional staff. Enemy troop units were around the entire system of tank hedgehogs. As long as the German tanks were on their own, the intermittent firing of flares and machine guns indicated their great uneasiness. This changed with the arrival of the armored infantry which followed the tanks. When the divisional artillery and engineers arrived and were also integrated into the hedgehog defense system, a restful night was had by all. Early next morning the Russians departed very quietly because they were unable to find any rest in the immediate vicinity of the German division.

II. Defensive Improvisations in Extreme Cold

During the last days of 1941, the 6th Panzer Division was outmaneuvered by superior Russian forces and dislodged from a chain of villages which surrounded a large forest region. The division was faced with two alternatives: It could either withdraw a certain distance to another group of communities and be enveloped and split up, or it could establish defense positions in front of or between these indefensible villages in a temperature of —49° F. without adequate shelter which would mean certain death from exposure. During the engagements of the last few days, most of which had of necessity taken place in open terrain, the daily casualties from frostbite had increased at an alarming rate. By 3 January 1942 the number of moderate and severe frost bite casualties had risen to 800 per day. At that rate the division would soon have ceased to exist. The immediate construction of shelters and bunkers, with whatever heating facilities could be installed, was mandatory. But these defensive positions could not be built because only one corps and two divisional engineer battalions with 40 to 60 men each and very little equipment were available. On the other hand a large quantity of explosives had recently arrived at division. In view of the critical situation, the engineer battalion commanders were ordered to disregard the frost and to blast enough craters into the solidly frozen ground along the tentative defense line to provide shelter for all combat units including the reserves. These craters were to be echeloned in width and depth and were to hold three to five men each. The engineers were also to mine certain areas and build tank obstacles in three places. The

tween the craters and to the rear. They were to use readily available lumber to cover the craters.

The blasting along the entire line started early next morning. The noise of the 10,000-pound explosive charges somehow gave the impression of a heavy barrage. Fountains of earth rose all around and dense smoke filled the air. The enemy watched with surprise, could not understand what was happening, and remained quiet. The blasting was over by noon and by nightfall the craters were covered and occupied by the combat elements. Soon afterward smoke rose from the craters where the crews kept warm at open fires. The craters formed an uninterrupted line of positions in front of which outposts were established. A maze of abatis lay in front of these, guns were emplaced along the thoroughfares behind the tank obstacles, and the entire front line was ready for defense within twelve hours after the first detonation. This position withstood all enemy attacks and was not abandoned until ten days later, in milder weather, when the adjacent units on both wings were forced to withdraw after enemy tanks had penetrated their lines.

The engineers who prepared the positions in the fiercest cold and suffered 40 percent frostbite casualties saved the combat units and restored the situation by their sacrifice. The very next day the casualties from frostbite dropped from 800 to 4 cases and thus practically ceased.

This improvisation was introduced at a time when 6th Panzer Division had lost all its tanks during the preceding withdrawal. Before blasting the positions, fighting had centered upon the possession of villages which alone could offer shelter from the extreme cold. Groups of villages had formed natural phase lines for both the attacker and the defender who had been forced to ignore all other tactical considerations. Whenever the Russians failed to capture a village by day, they withdrew to the last friendly village for the night. Not even the best-equipped Siberian troops attempted to continue an attack on a village after dusk. Blasting positions in open terrain was therefore an innovation that served the double purpose of stabilizing the front and maintaining the combat efficiency of the remnants of the division.

On another occasion the blasting of ice proved much less effective. In order to prevent the enemy from making an enveloping thrust across Lake Pskov on the Russian-Estonian border during the winter of 1943–44, Army Group North blasted a ten-foot-wide, several-mile-long canal into the ice north of the isle of Salita. At that time the ice was so thick that it could

instances, it became apparent that the blasting of ice created no permanent obstacle because the water froze immediately in the extreme cold and shortly afterward the ice was again capable of carrying heavy loads. In extremely low temperatures all attempts to stop enemy advances by blasting frozen bodies of water were doomed to fail.

Almost a year later, toward the end of 1944, the Germans devised another improvisation to prevent the Russians from crossing a frozen body of water. By late autumn the Russians had driven a wedge into the German front near Memel [Ed: now Klaipeda] and had reached the Kurisches Haff. (Map 4) The Germans intended to prevent the landing of enemy forces on the west side of the Haff. A large-scale landing was not expected because the prerequisites for such an undertaking did not exist, but it seemed quite likely that the enemy would attempt to land sabotage or raiding parties, spies, agents, or commandos along the coast under cover of darkness. The coastal defenses composed of service units, volunteer organizations, and Volkssturm [Ed: Peoples' militia assembled during the last years of the war] supported by weak reserve elements from Koenigsberg [Ed; now Kaliningrad] were thought to be sufficient to thwart any such operation.

It was a known fact that the Haff froze over in winter and that the ice cover would carry men and vehicles. This might encourage enemy attempts to envelop the exposed German wing, cut off the only supply route to Memel, or undertake some other major operation. For that reason plans were drawn up to block the Kurisches Haff in its entire width of ten miles.

In the late fall of 1944 a number of wooden bunkers with heating facilities were constructed for this purpose. They were approximately five feet high and could hold a crew of three to five men and their weapons. The bunkers were placed on rafts with sled runners in order to give them mobility on ice and simultaneously to protect them from sinking into the water in case the ice suddenly broke. This possibility had to be taken into account because of the sudden changes in temperature which occur in this area. By the end of December 1944 the first groups of bunkers were moved onto the freezing Haff, the edges of which were by then sufficiently strong to carry them. The bunker positions were spread over the ice as the freezing process progressed. Approximately 150 bunkers were laid out in two parallel lines in checkerboard formation, giving each other fire support. The bunkers were reinforced with blocks of ice on the

tanglements with alarm signals was to prevent the enemy from infiltrating between the bunkers. Reserves were held in readiness behind both lines of bunkers. Ice boats and motor sleighs needed by the reserves to give them mobility did not arrive in time and the plans for organizing a combined ice-boat and motor-sleigh brigade had to be abandoned. Artillery support was provided from both shores.

Since the Russians lacked fast means of transportation on ice, they could only have advanced on foot over the long distances of the Haff. This was probably the reason why they failed to attack during the winter and this improvised position was therefore never put to the test.

III. A Moving Pocket Regains the German Lines

In some instances German divisions were left behind the Russian advance and were forced to fight their way back to the west. For example during the large-scale Russian offensive in the winter of 1942, the 320th Infantry Division, which had held a sector on the Don front with two Italian divisions at its sides, suddenly found itself behind the enemy lines because of the rapid disintegration of the allied units. The division commander decided to fight his way back to the German lines. On the way all the divisional motor vehicles ran out of gasoline and had to be destroyed. The horse-drawn batteries and trains also lost a great number of horses in battle and from exhaustion. Altogether, the fighting power and mobility of the division was greatly impaired. If it was not to resign itself to its fate, it had to resort to improvisations. What was needed either had to be wrested from the enemy or taken from the land. In this manner the division procured hundreds of small draft horses for the light vehicles. The medium artillery was drawn by oxen. Cows and oxen were used as draft animals for the transportation of radio and signal equipment. Even the division commander decided to use such a team as a sure means of transportation. The loss of many weapons such as machine guns, anti-tank guns, and artillery pieces could only be offset by weapons captured from weak enemy detachments on occasional raids. The ammunition needed for the use of captured weapons was also taken from the enemy and the same methods were applied in obtaining rations. Small radio sets and other sensitive equipment had to be carried on litters. Infantrymen mounted on *Panje* horses were charged with reconnaissance and security. The difficult retreat of the division took several weeks and was an

tions. As the division approached Kharkov, it suddenly made radio contact and asked the German units in the city for assistance in its attempt to break through to the German lines. A strong armored thrust from inside the city was co-ordinated with a simultaneous attack by the division. The enemy lines were pierced at the point designated by the division and it was able to rejoin the German lines. Its appearance hardly resembled that of a German unit. A strange conglomeration of weapons, equipment, vehicles, and litters, small and large shaggy horses, oxen and cows, accompanied by soldiers in a variety of winter clothing created the impression of a traveling circus on parade. And yet it was a battle-tested unit with excellent morale that had courageously fought its way through enemy territory, had returned to its own lines, and was to be considered a precious addition to the corps strength. By the following day the division once again stood shoulder to shoulder with the other corps units and held a sector facing east. Its strong will to survive and skillful improvisations enabled the division to retain its freedom.

IV. Zone Defense Tactics

During the last years of the war, Russian break-throughs were accomplished by the same methods that had been employed so successfully by the same enemy in World War I. These methods had little in common with customary tactical doctrines but were based on great superiority of manpower and matériel. After weeks of logistical build-up and moving up the enormous quantities of ammunition needed, the German front was breached after several hours of concentrated fire. This was followed by the break-through of massed infantry forces and deep thrusts of armored units in order to gain freedom of maneuver. The system was absolutely foolproof so long as the opponent did not interfere with the sequence of events. An essential prerequisite was that the defender would rigidly hold that sector of the front, which was to be attacked, until he received the deadly blow. In the East the Germans complied with this prerequisite since their forces had strict orders not to relinquish one inch of ground voluntarily. These defense tactics were enforced almost without exception until the end of the war. Being aware of the army's numerical inferiority and its loss of combat efficiency caused by heavy casualties, Hitler perhaps doubted its capability of conducting a flexible active defense and therefore ordered all army units to cling rigidly to prepared positions.

alone lead to victory. Despite the fact that Russian casualties were relatively heavier than those suffered by the Germans and the fighting qualities of the Russian soldiers vastly inferior to those of their opponents, the always-present crucial problem was to make up for the Russian superiority in men and matériel. Aside from their greater fighting capabilities the Germans had no other means of offsetting their inferiority than by employing more flexible and superior tactics. If the military leaders lost their faith in the superiority of the German armed forces in these two fields, or if shortages of matériel became so acute that these advantages could not be exploited, then a favorable outcome of this war was no more to be expected than in World War I. It was the responsibility of the Supreme Commander, Adolf Hitler, to recognize this fact and draw the necessary conclusions. Until that time it was the duty of the commanders in the field to do their utmost to prevent a collapse of the front lines. The greatest imminent threats to the fighting front were the Russian massed attacks with subsequent break-throughs. Since adequate reserves for successful defense were rarely available, it became all the more necessary to prevent the annihilation of the front-line units by Russian fire concentrations, bombing attacks, and massed armored thrusts in order to preserve their combat efficiency.

An improvisation devised for this purpose was the zone defense tactics introduced toward the end of the war. It was derived from an analysis of the reasons for the success of most enemy break-throughs. The principal factors to be considered were the following:

a. The annihilation of front-line troops by mass concentration on points along the main line of resistance;

b. The neutralization or destruction of the German artillery by heavy counterbattery fire and continuous air attacks;

c. The elimination of command staffs by air attacks and surprise fire on command posts up to army level;

d. The harassing of reserves by artillery fire and air attacks on their assembly areas;

e. The disruption of the routes of communication to the front which delayed movements of reserves and cut off supply;

f. The massed armored thrusts in depth which enabled the Russians to obtain freedom of maneuver.

For obvious reasons the task of the defender was to neutralize [illegible] tactics or at least to reduce them to tolerable pro-

vised the following defense measures and employed them successfully:

a. There were two ways of preventing the annihilation of the frontline troops: either by constructing bombproof and shellproof positions or by withdrawing the forward units in time to evade the devastating barrages. Since the construction of shellproof positions required an expenditure of time and materials beyond the German capabilities, the adoption of evasive tactics was the only solution. Such evasive tactics had already been employed during the last stage of World War I. The forward positions were evacuated shortly before an imminent attack and the defending troops moved far enough to the rear into a new and even stronger line to force the enemy to regroup his forces, always a time-consuming maneuver. The difficulties encountered by the enemy before he was able to resume the attack were to be enhanced by demolitions in the intermediate terrain. These evasive tactics were tried out in 1918 in the West when the German combat forces withdrew to the Hindenburg Position and in the South on the Italian front along the Piave River. The loss of some ground which was involved in the application of these tactics was a well-considered sacrifice. But to achieve a permanent gain was possible only if the new positions could be held without fail. Another method of evading fire concentrations and a subsequent break-through was the adoption of elastic defense tactics in a deeply echeloned system of machine gun strong points which, however, often lacked the necessary resiliency to stop a major enemy attack.

A method frequently applied by the Germans as another form of evasion can best be compared with saber-fencing tactics. A cut is warded off by sudden retirement with appropriate guard, followed by an immediate counterthrust which will permit the fencer to regain his former position. Like the fencer, the forces holding the threatened sector of the front executed a surprise withdrawal at the last moment. They moved far enough to the rear so that the blow would miss them, the pursuing enemy could be repelled, and the initial position could be regained by a counterthrust. In order to satisfy these requirements, the terrain in which the pursuing enemy was to be intercepted had to be well chosen and systematically prepared in order that the with-

hours. It was therefore neither possible nor essential to withdraw the front-line units so far to the rear that they were out of reach of enemy guns. Past experience indicated that the enemy fired his concentrations only on the main line of resistance and on strong points in the zone of resistance. For this reason it was absolutely necessary to evacuate this zone. Depending on the terrain and local fortifications, it was usually quite sufficient to withdraw the most forward troops 900 to 2,200 yards. Here was the forward edge of the battle position, a well-camouflaged organized system of defense that took advantage of all favorable terrain features. Numerous strong points and sizable local reserves were distributed throughout the position which extended back to the artillery emplacements and even beyond. In a camouflaged area behind the artillery were the general reserves of corps and army. By following this procedure, targets were so well dispersed that fire from as many as a thousand guns directed at so large an area could cause only local damage but could never wipe out entire units.

b. If the German artillery was to avoid neutralization and escape destruction it had to switch to alternate emplacements in the battle position at the decisive moment. In addition the artillery also had to use alternate observation posts. These alternate positions had to be prepared well in advance, provided with ammunition, and equipped with a smoothly functioning wire and radio communication system. Additional battery positions and observation posts had to be reconnoitered and organized in depth so that they would be ready for immediate occupancy and utilization in case of emergency. This was to guarantee continuous support for the infantry even in the event of a reverse since only the flexible employment of artillery units which were always intact and ready to strike promised a successful defense. Furthermore, each battery had to establish two or three additional alternate positions and one or two dummy positions and had to fire from them with at least one registration gun in order to determine firing data for every emplacement. Altogether between five and eight positions had to be prepared by each battery. The Russian build-up allowed sufficient time for such extensive preliminary work and the Germans could therefore devote several weeks to these preparations.

c. All necessary precautions had to be taken to protect the command staffs and their communication system from destruction by artillery preparations and the ensuing general attack. For that reason no command staff from battalion up to army was permitted to stay at the command post it occupied before the start of the enemy attack. Each staff had to prepare a well-camouflaged, shellproof command post away from inhabited communities and was required to install a telephone switchboard in a separate bunker. Communications with the command post had to be assured by wire, radio, visual signals, dispatch riders, or runners, and in an emergency by a combination of these various means of communication. Telephone wires had to be laid in such manner that they could not easily be cut by fire or tracked vehicles; wherever possible they were laid along ditches and swampy depressions or strung on trees. Radio trucks had to be dug into the ground in inconspicuous places, protected against fragments, and well camouflaged before the attack started. Then strict radio silence had to be enforced.

d. Before the general attack, all reserves had to leave their billeting areas and move into the battle-position quarters which had to be well camouflaged, outside inhabited communities, and ready for immediate use. Telephone, radio, and other communication media had to be readily available.

e. The routes of communication to the front were of vital importance and therefore had to be kept open under all circumstances. Bottlenecks had to be avoided, defective stretches of road made serviceable even in inclement weather, and strict traffic control imposed for two-way traffic. Alternate bridges had to be built in suitable places away from the existing ones and provided with approach roads. At least two alternate routes had to be determined through each community so that convoys could detour narrow streets whenever there was danger of air attacks.

f. One of the major problems was to intercept massed armored attacks and prevent break-throughs. This involved extensive countermeasures which could only gradually be enforced and slowly integrated into the defense system.

First of all the terrain particularly suited for an armored break-through was mined to a quite unusual extent. Selecting such areas and mining them with due consideration for Russian tactical doctrine presented little difficulty to

were to be laid in depth and width in a checkerboard pattern in such a manner that the German armored units could detour them on the basis of information received. All signs designating mine fields were removed prior to the enemy attack. No mines were laid in front of the German main line of resistance because the enemy could have removed them and used them for his own purposes before the start of the attack. The main battle position was mined in depth up to fifteen miles to the rear. Prior to the major offensive in the area east of Lvov during the summer of 1944, the sector where the main attack thrust was expected was mined with 160,000 antipersonnel and 200,000 antitank mines within the zone defense. This was the first time that the Germans applied zone defense tactics of the type described in this study.

The most forward divisional antitank guns had to take up positions approximately one mile behind the main line of resistance. The bulk of the artillery and numerous medium antitank and antiaircraft guns were to form centers of gravity behind the forward guns up to twelve miles in depth. In addition, all roads suitable for sudden armored thrusts in depth were blocked by tank obstacles, captured immobile antitank guns, and antiaircraft guns emplaced at all important points up to a depth of twenty-five miles. In case of critical developments numerous self-propelled antitank guns were to reinforce the defense. To camouflage these guns, tank ditches had to be dug and approach roads built in suitable terrain.

The army reserves had to be sufficiently strong to support the front and stop the enemy in case he suddenly shifted his main effort and turned his tanks to an adjacent sector which had not been prepared according to zone defense principles. For instance, during the battle near Lvov the army commander held in reserve five strong panzer divisions which he had withdrawn from sectors that were not in immediate danger. Two of them were to support the front in the center of gravity and the three strongest were to be instantly committed to stop any armored thrust elsewhere in case the enemy shifted his point of main effort. The two divisions assigned to the center of gravity were expected to be able to lend them assistance in due course. The reserves formed mobile battle groups and

order to enable them to give immediate support to front-line sectors threatened by sudden disintegration. In most cases these battle groups consisted of reconnaissance or motorcycle battalions reinforced by antitank and assault gun battalions which were held in instant readiness and formed advance detachments of their respective divisions.

The task of indoctrinating the unit commanders in all the essential zone defense measures was far from easy. After detailed briefings, map exercises, and tactical walks, they not only grasped the idea but became thoroughly convinced of the expediency and feasibility of the plan and lent their enthusiastic support to its execution. Discussions and training exercises continued down the line to the smallest units.

The next step was to put these measures to their practical test and examine them in the light of experience. Starting with individual arms, these tests were later extended to larger units. Finally, zone defense tactics were adopted and enforced by entire divisions and corps. The tremendous effort entailed in these preparations was to pay high dividends.

The fencer derives an advantage from cutting into his opponent's sequence when the latter intends to strike because the attacker usually exposes himself on that occasion. This intercepting blow was also included in the zone defense tactics. Since the enemy moved his forces close to his most advanced positions and massed them there before jumping off to attack, he exposed himself to concentrated surprise fire from all artillery pieces and rocket launchers. Two basic loads of every type of ammunition had been set aside for just that purpose.

The most difficult and critical problem was to determine the correct time for withdrawing to the battle position. If too late a moment was chosen, the safety measures against the annihilation of the combat forces by an enemy barrage would have remained ineffective. The front-line units and intermediate commands alone were unable to gather sufficient positive clues regarding the hostile intentions to enable the higher echelons to draw the correct conclusions as to when the enemy attack would begin. This can be easily understood since their observation of enemy activities was restricted to the most advanced areas of the front. But well-organized combat intelligence and constant air observation, co-ordinated by the army commander in person, gathered so much information on enemy preparations and covered his rear areas so completely that the H Hour for the attack could be determined with a high degree of accuracy. The most re-

as 70 percent of all reliable information was obtained from this source.

The improvised defense system was first applied in the summer of 1944 in the battle of Lvov and for the second time in January 1945 during the second battle for East Prussia. In both instances the Russians attacked at precisely the point and in exactly the manner expected by the army commander who devised this zone defense system. H Hour for the enemy attack in East Prussia was determined to the exact day and hour. In the battle near Lvov, however, the enemy started his offensive two days later than expected. Interrogation of prisoners confirmed that the attack was postponed by two days at the last moment. As a result the evasive maneuver had to be repeated on three successive nights. On the first day the Russians either did not notice the withdrawal because German rear guards left in the forward positions simulated the weak routine harassing fire or they lacked time to react to this sudden change. On the second day they attacked several evacuated positions with combat teams up to regimental strength and pushed back the rear guards.

Even this turn of events was foreseen in the original plan. Strong counterthrusts supported by massed artillery fire from the regular firing positions sealed off the enemy penetrations and at dusk the former main line of resistance was once again occupied by the infantry. As expected, the enemy resumed his attacks during the night to find out whether the Germans would continue to occupy the positions. When these night attacks had been repelled everywhere and the Russians had convinced themselves that the positions were held by their full complements, the fighting broke off and the front calmed down. After midnight the positions were evacuated for the third time and, when the enemy fire concentration was unleashed at dawn, it hit empty positions. The units that had moved into the battle position suffered hardly any losses and, supported by assault guns and one battalion of Royal Tiger tanks, they were able to drive back nearly all Russian forces which had advanced beyond the empty positions. The artillery preserved its entire fire power because the shelling and air bombardment hit the empty battery positions which assumed the role of dummies. Not a single gun, not a single command post was hit. The telephone communications from army down to regiment suffered no disruption. But the former positions that had been evacuated were in poor shape. The towns were badly damaged by air attacks, and the debris of [illegible] in several villages.

designated alternate routes and was stopped only intermittently whenever the enemy air force scored direct hits on convoys.

The reserves were left untouched by the air attacks directed against them since they had moved to locations that were unknown to the enemy. The advancing Russian infantry was hit by the defensive fire of an artillery and rocket launcher brigade which was fully intact and well supplied with ammunition. When the enemy infantry attempted to disperse and take cover it walked straight into the mine fields which had been laid behind the German main line of resistance. This took the momentum out of the attack and prevented the Russian infantry from concentrating its effort in one direction. The advance slowed down and became hesitant. Practically all territorial gains had to be abandoned by the Russians when the German troops that had evaded the destructive effect of the initial barrage started to counterattack later during the day. The distress signals sent out by the Russian infantry brought their armor to the scene. Like a cataract released by the sudden opening of a dam, the massed armor poured across the Seret River into the historic battle ground of Yaroslavichi where exactly thirty years before, during the summer of 1914, Austro-Hungarian and Russian cavalry divisions had clashed head on in the last major cavalry charge in history.

History repeated itself. Once again the Russians had numerical superiority and once again the battle ended in a draw. In 1914 the defender achieved this result by the use of new machine gun and artillery tactics whereas in 1944 he introduced zone defense tactics to overcome his inferiority. On the very first day of the armored attack, the enemy lost eighty-five tanks in the mine fields. The number of tanks lost increased rapidly when the armored thrust came within reach of the antitank guns and was brought to a halt. The losses assumed truly disastrous proportions when the German panzer divisions proceeded to counterattack.

In 1914 as in 1944 the battles for Lvov were not decided by the cavalry charge or the armored thrust near Yaroslavichi but by a major Russian break-through north of Lvov in the adjacent army sector to which the enemy shifted his main effort. Unfortunately for the Germans in 1944, the SS panzer corps with the three strongest panzer divisions had previously been transferred to the Western Front because the Allies had meanwhile landed in France. For this reason sufficient forces were no longer available to stop the Russian armored drive in the new area of penetration.

V. Improvised Fortresses

By 1944, after the Germans had suffered a succession of defeats, Hitler frequently tried to reverse the tide by the arbitrary designation of fortresses. In the face of an imminent enemy attack, many towns suddenly became improvised fortresses and had to suffer encirclement and siege as if they were well-equipped strongholds that had been systematically constructed and provisioned over a number of years. A commander was appointed for each fortress, given absolute powers, and put under a special oath. He thereby received authority of life and death over all persons within his jurisdiction and could employ them as he saw fit, even though most of them were merely passing through his territory. These men and their equipment were frequently the only resources at the disposal of the commander who actually was forced to pick them off the streets.

Thus, the city of Kolberg was declared a fortress early in March 1945 when the battle for Pomerania was in full swing. The small city was overcrowded with wounded, the railroad station filled with hospital trains. Columns of refugee carts blocked the roads and enemy tanks were only twenty-five miles off. Precisely at that moment the newly appointed fortress commander who was entirely unfamiliar with the situation was flown in by plane. He was not acquainted with the duties of a fortress commander and had to be briefed in detail. The fortress was absolutely defenseless. Hitler's attention was called to this fact, but he nevertheless decided that Kolberg must be held as a fortress under all circumstances. In his reply Hitler stated that the Spandau depot would receive instructions to immediately dispatch twelve new antitank guns to Kolberg by rail. This was at a time when the single-track railroad line to Kolberg was completely blocked and enemy tanks were expected to appear in the immediate vicinity of the city within a few hours. Obviously, the antitank guns never arrived. The commander was forced to pick his defense force and weapons from the streets. Indiscriminately everybody and everything moving through the city was stopped, whether they were Luftwaffe, naval personnel, damaged tanks, antiaircraft, antitank, or artillery guns, and integrated into the fortress defenses.

It was difficult to imagine why Hitler decided that this former small coastal fort should be defended, unless for historical reasons. In modern times, however, the events that occurred in Napoleon's day could not possibly be repeated. However, the enemy seemed to be impressed by the glorious past of the city because his approach was slow and hesitant. The first Russian attack was delayed for two days, but the defensive tactics employed by the Germans soon revealed their weakness and after only a few days the enemy captured the city. Most of the entirely improvised garrison was rescued by the Navy.

The location of some of the fortresses was so unfavorable that their defense seemed hopeless from the outset. Despite all remonstrances, even these places had to be held at all cost. For instance, Brody, a small town in eastern Galicia completely surrounded by woods, was located in a valley without observation facilities. Dominated by a nearby plateau in enemy hands, the town was under complete enemy observation and at the mercy of his artillery. At one point the woods even reached up to the edge of the town. Because of the lack of space, there was not even a suitable area for the artillery emplacements in case of a siege. In order to avoid an imminent disaster, the army commander circumvented Hitler's orders and adopted tactics that prevented a siege of the town.

The situation at Ternopol was similar; there the garrison held out bravely for one month only to succumb for lack of rations and ammunition after an attempt to break the siege had bogged down in the mud.

By the end of January 1945 one of the German panzer armies had three of its best divisions in Fortress Koenigsberg, two in Fortress Memel, and only the two weakest at its disposal for operations in the field. At this decisive time an entire army group with the best available troops was hemmed in in Kurland and eliminated from participation in the defense of the German homeland because it had strict orders to hold out in place.

These tactics were championed by Hitler in person and enforced with all the authoritative powers at his disposal. In the end they obstructed all operational freedom and devoured the very substance of the German Army until there was no army left.

But the picture was entirely different whenever the encircled forces broke out and remained intact. In February 1943 Kharkov was surrounded by enemy armies and ordered to hold out in a hopeless situation. In his last telephone message the corps commander called attention to the seriousness of the situation and stated emphatically that the only choice was between losing the city alone or losing the city with all the troops in it. The reply was that "Kharkov must be held to the last man." On the following morning a second order came through by teletype stating that "Kharkov must be held to the last man but the defenders must not allow themselves to be encircled." On

the strength of this ambiguous order, the second part of which precluded the first, the encircled corps took immediate steps for a breakout to the rear without the knowledge or approval of army. After two days of hard fighting, which ended with the loss of several hundred motor vehicles, this corps rejoined the German lines. The decision proved to be correct for, together with some divisions detrained in the Poltava area under its protection, the corps was able to launch a counterattack only one month later, recapture Kharkov and Belgorod, and reach the upper Donets.

This example demonstrates very convincingly that it is not of decisive importance to hold a town at all cost but rather to have some forces available for further operations.

VI. Defensive Improvisations in East Prussia

As the danger of an invasion of eastern Germany loomed toward the end of 1944, tens of thousands of civilians were mobilized to construct a number of continuous defense lines in East Prussia. Everywhere people could be seen digging trenches and defense positions. Altogether twelve main defense lines and switch positions were constructed, many of which were well equipped. Perhaps their most outstanding feature was the construction of improvised machine gun emplacements which were very practical and consisted of two large concrete pipes. One pipe stood upright in the ground and served as the gun emplacement proper whereas the horizontal pipe was connected to the base of the upright one and employed as a personnel shelter. This improvisation offered shelter against tanks, could be constructed in a minimum of time, was easy to transport, and highly effective.

In addition to these defensive positions a continuous antitank ditch was constructed which cut across all roads. Temporary bridges, ready for immediate demolition in case of emergency, spanned the ditch where it cut through the roads. Some 18,000 laborers were diverted to the construction of this antitank ditch alone, although they were badly needed to build fortified defensive zones. In order that such zones could be prepared at least in the most essential areas, every man belonging to reserve, service, supply, or headquarters units was assigned his daily quota of obligatory digging that was measured in cubic feet. If necessary the work had to be done at night. To get these positions ready for immediate winter occupancy, the rear echelon units as well as Volkssturm battalions moved into the positions to make the quarters livable. Slit trenches were dug along the roads and antitank and machine gun nests were prepared at all important points. Perimeter defenses were established around every village and hamlet.

The over-all effect of these numerous, fully integrated defense installations was to transform the most vulnerable northeastern part of Germany into one great fortress area. Although some of the defensive positions never played any part in the subsequent fighting, others proved very useful during the battle for East Prussia. If they failed to change the fate of that doomed province, it was due to the entirely insufficient number of troops and to the inadequacy of the weapons which could be mustered for its defense.

Chapter 3

Troop Movements

I. Furlough and Troop Trains under Partisan Attacks

Precautionary measures for the protection of railroads had to be stepped up because of increasing partisan activities in the East. Furlough and troop trains moving over railroad lines which crossed partisan-infested forests were organized as combat units. When a man was sent on furlough he had to carry his rifle until he reached a designated station. He left it there and picked it up on his return trip. The transport commander was simultaneously combat commander, the ranking man in every car was car commander. Demolition of tracks combined with raids from the forests which came close to the lines on both sides were to be expected at all times, particularly at night. In case of a surprise attack or upon a specific alarm signal, the occupants of all cars were instructed to jump off—even-numbered cars to the left, odd-numbered to the right—and to repel the attack. A few assault detachments and a small reserve remained at the disposal of the transport commander in case of a special emergency.

An interesting incident occurred in November 1942 when 6th Panzer Division was moved to the area south of Stalingrad after its rehabilitation in Brittany. The division was loaded on seventy-eight trains of approximately fifty cars each. Each train was organized for combat in accordance with the above-mentioned procedure. Numerous raids and surprise attacks occurred during the trip through the marshy forests. Only a few trains got through the Pripyat region without incident. Most of the attacks were directed against the trains hauling tanks and artillery, and fierce fighting broke out in each instance. One artillery battalion commander and several men were killed and a number of officers and men wounded. The trains were greatly delayed and many of them had to be rerouted. During the ten-day trip they were mixed up and arrived at their destination in improper order and long overdue. A special problem was created by the fact that the trains loaded with artillery and tanks arrived last because twenty such trains were attacked by partisans, some of them repeatedly. This matériel was urgently needed because, from the time when the first train unloaded at Kotelnikovo, the division was under enemy artillery fire and the railroad station was attacked by dismounted cavalry. To secure and enlarge the detraining area required additional fighting. The division had to detrain where the enemy was assembling his forces because there was no continuous German front in this area after the encirclement of Stalingrad. It was due only to enemy hesitation that the units, which had just been unloaded and lacked heavy weapons support, did not get into serious trouble. The enemy started his attack on the assembly area of the completely isolated division immediately after the arrival of the trains carrying the German tanks. On 5 December 1942 an entire Russian cavalry corps with sixty-four tanks drove into the flank of the assembly area south of the Aksay River and achieved a penetration. But during the night the German tanks were unloaded close to the enemy. Some of them were detrained outside of the railroad station and prepared for the counterthrust. On 6 December the bulk of the division with 160 tanks attacked the enemy's flank near Pokhlebin, cut off his retreat, and pushed him against the steep banks of the unfordable Aksay. The Russians suffered a crushing defeat from which only small remnants of the corps and six tanks were able to escape.

II. The Commitment of Furlough Battalions

A few weeks later when the Russians broke through along the Don, the Germans attempted to establish a new front along the Donets River. The situation was serious. The forces available were weak because several armies put in the field by Germany's allies had suddenly collapsed. Every German unit, every German soldier was urgently needed to strengthen the front.

Upon returning from furlough members of units enclosed in the Stalingrad pocket were stopped at Kamensk Shakhtinski on the Donets, assembled, organized into a battalion, and immediately committed along the Donets east of the city. A young first lieutenant was appointed battalion commander and noncommissioned officers commanded the companies. The men came from various units and arms. They did not know their leaders who in turn did not know their men. Equipped with rifles and only a few machine guns, they were to defend a six-mile sector along the river.

The Russians soon spotted this weak sector and, covered by tanks and artillery, crossed the Donets with greatly superior forces and attacked the battalion. They broke through the thinly manned front at various points and advanced swiftly toward the south. The infantry division to which the battalion was attached was involved in heavy defensive battles and could not provide any help. But mobile reserves of the 6th Panzer

Division which held the sector adjacent to the east moved up quickly and attacked the enemy from the rear. Within a few hours the hostile force was destroyed and its remnants captured or shattered. After a few more hours the furlough battalion which had suffered heavy casualties was reassembled. It was immediately disbanded and the men were assigned to their basic arms within the panzer division, where their capacities could again be fully utilized. Every individual member of the furlough battalion was a battle-tested front-line soldier. But hastily assembled in an improvised unit, without the essential heavy weapons, these men could not be utilized in accordance with their abilities. The battalion was doomed in this unequal battle.

The formation of furlough battalions was an unavoidable expedient in critical situations, but it really meant the improper expenditure of good combat soldiers. For this reason furlough battalions had to be dissolved as quickly as possible and the men returned to their original units.

Chapter 4

Combat Arms

I. Infantry

In pursuit, German and enemy forces alike found it expedient to mount on tanks. This improvisation proved effective on innumerable occasions when a defeated enemy was to be pursued. For instance, when 6th Panzer Division spearheaded the drive of Army Group North during the first days of July 1941, it broke through the pillbox-studded Stalin Line after two days of fighting. (Map 1) The enemy offered renewed resistance farther to the northeast but after a few hours the Russians were dislodged from the fortified frontier zone and dispersed into the surrounding forests. In order to take possession of three major bridges before their destruction, it was necessary to prevent the enemy from gaining another foothold. Spearhead panzer units, composed of some fifty tanks with infantry mounted, pursued the retreating Russians relentlessly, occupied the bridges, and—meeting with little resistance—reached the day's objective, the city of Ostrov, within three hours.

Another good example was the battle of annihilation fought southeast of Plavskoye in the Army Group Center sector. It started in the middle of November 1941 when an enemy cavalry division attacked the exposed flank of the army group. Assault guns were to disperse the enemy formations and infantry was to annihilate his forces completely. In order to move the infantry straight into the depth of the battlefield together with the assault guns, volunteers from infantry units mounted the assault guns and, hanging on like grapes on a vine, rode into the enemy lines with all guns ablaze. The enemy cavalry division was obliterated.

In both instances the enemy was totally vanquished and shattered. The completeness of the success of this improvisation can be traced to the panic spread in the enemy ranks by the German tanks. But whenever the enemy was firmly entrenched in front or on the flanks, this venture turned out to be dangerous and costly. During the later years of the war this improvisation was generally discontinued because of heavy casualties caused by antitank weapons and air attacks. Moreover, it was superseded by the introduction of armored personnel carriers.

The Russians also used this expedient repeatedly and found it a fast means of transportation. But whenever they encountered German resistance they always suffered heavy casualties from

machine gun fire. For that reason they discontinued this practice when they came close to the German lines.

II. Artillery

In position warfare daily fire direction exercises carried out by the artillery and infantry howitzers assumed great significance. During these exercises all wire and radio communications were prohibited for extended periods. As substitutes field expedients had to be used to maintain communications between observation posts and gun positions. Some of the media employed were signals transmitted by discs, inscriptions on blackboards read with the help of field glasses, mounted messengers, runners, and relayed messages. Much time was devoted to training in Morse code transmission by signal lamps.

Since the German infantry units were usually understrength the Russians were often able to infiltrate through their defense lines. The artillery positions therefore had to be fortified and constructed as strong points in the depth of the defensive zone. The artillerymen had to be given advanced infantry training and were issued extra machine guns and hand grenades whenever possible. The gun crews had to be ready to make counterthrusts which were specified in the combat orders of each battery.

Such a system of strong points proved effective during the summer of 1943 when the Germans were engaged in heavy defensive battles west of Kharkov. The artillery troops intercepted an enemy force which had infiltrated through sunflower fields. For a while the situation looked very critical but the artillerymen, fighting a delaying action, gained sufficient time for the launching of a counterattack which led to the annihilation of the enemy forces.

Some German commands on the Russian front issued orders prohibiting their artillery from firing on enemy command posts. The enemy was to feel secure and was to establish a network of communication lines and observation posts based on his command posts and was not to suffer any interference during that time. But the destruction of uncovered command posts was to be prepared in such a manner that it could be carried out instantaneously in accordance with the demands of the tactical situation. The sudden elimination of enemy command installations never failed to produce a favorable effect on offensive or defensive operations.

Flat trajectory fire from howitzers proved very effective in clearing tree tops in forest fighting. In one instance, during operations near Leningrad in the autumn of 1942, marshy terrain prevented the howitzers from going into position to deliver flat trajectory fire and to assist in the penetration of a large wooded area. The following tactics were therefore employed to cross the wooded region: All artillery pieces, heavy infantry howitzers, antiaircraft guns, and ground support planes were temporarily subordinated to the artillery commander so that he could exercise centralized fire direction. Heavy rolling barrages systematically raked the woods and cleared lanes in one sector after another. For this purpose the wooded zone was divided into 1600-foot squares which, in turn, were subdivided into 400-foot squares. Artillery, infantry, and Luftwaffe units marked identical squares on their maps. According to the attack plan one square after another was raked by heavy concentrations either from front to rear or from rear to front or alternately, but always in conformity with the requests of the assault troops. Smoke shells were interspersed to obstruct the enemy's vision and prevent him from conducting a systematic defense of the forest. The forward assault units were withdrawn a few hundred yards shortly before H Hour to enable the artillery to soften up the enemy positions without endangering the infantry. The delay caused by this withdrawal was made up by the immediate launching of the attack as soon as the fire lifted. During the course of the assault the advancing infantry closely followed each shift of fire, moving into each square as soon as it had been cleared, and proceeded to mop it up.

The detection of German artillery positions by enemy observation was sometimes made more difficult by camouflaging the firing report with the help of an improvised device that simulated detonations. At the beginning of the war most observation battalions were equipped with such simulating devices, but later on only few of them were available and those few were inadequate for actual deception because of the great variety of guns used in counterbattery fire and for infantry support. Actual deception of the enemy artillery observation could only be achieved if the deceptive firing report sounded like the detonation of a real gun both to the enemy ear and to his sound-ranging equipment. A close similarity between the actual and the deceptive report was achieved with the assistance of engineer specialists who built a makeshift detonation device which was thoroughly tested behind the front. The amount of explosives used in this device was regulated in accordance with data provided by the sound-ranging check points. These experiments were continued until the instruments finally showed that the detonations could have originated from 150-mm. field howitzers or 210-mm

howitzers. Furthermore it was established that the most effective deception could be achieved by placing the detonation device approximately one mile to the front of the battery which was to be protected but never on its sides or to its rear.

The results of these experiments were confirmed in 1942, when it was necessary to deceive the enemy about the positions and strength of the German artillery in the Volkhov sector of Army Group North. There the 818th Artillery Regiment was faced by numerically superior Russian artillery in extremely narrow positions hemmed in by woods, marshes, and impassable terrain. Deception was essential in order to protect the positions from counterbattery fire and air attacks and to divert the enemy fire by misdirecting it into unoccupied territory. For some time the impact areas of the enemy fire in the immediate vicinity of the detonation devices gave the impression that the improvisation had served its purpose and that the enemy had been deceived, at least for a while. Yet, some caution against overestimating the effect on an alert and well-trained enemy may well be indicated. Although the accuracy of his observation can often be frustrated by distorting the sound patterns at his control points, the continuous deception of the enemy requires the introduction of a few additional improvisations which might present inconveniences to the artillery units applying them. These are:

a. Several men would have to be permanently assigned to servicing the detonation device and maintaining telephone communications with the gun emplacements. In co-ordinating the simulated detonations to the actual gun reports it is necessary to pay careful attention to the velocity-of-sound factor.

b. The dummy positions must have the outward appearance of fully occupied firing positions. This can be achieved by burning wood fires that leave traces of smoke in the air and show up on air reconnaissance photos.

c. It will be helpful if the camouflage materials are frequently renewed, particularly in the event that tree trunks are supposed to represent guns.

In the field of sound deception, which assumed particular importance when a weak force faced a considerably stronger enemy, several other expedients proved quite effective:

a. Co-ordinating the fire of several batteries or battalions by issuing simultaneous fire commands over the wire or radio fire direction system in order to prevent the enemy from identifying individual emplacements.

b. Moving individual guns out of the firing positions and including these roving guns in the fire-command system.

c. Combining a medium battery with a light howitzer battery for simultaneous firing, particularly during the registration fire by sound and flash methods which provided the data for firing for effect, since these preliminaries always took time and were easily observed by the enemy.

Critical ammunition shortages forced the artillery to fire almost exclusively on observed point targets. In view of the circumstances this produced better results than firing on area targets with insufficient ammunition. Harassing fire by sudden concentrations was also excluded. Instead, slow fire by single pieces from many batteries had to be carried out simultaneously according to a precise firing plan. The advantage of this method was that it could be continued all through the night and that enemy communications to the front could thus be seriously hampered and more effectively disrupted than by intermittent concentrations. This expedient was successfully applied at Sevastopol in 1942. According to intercepted radio messages all Russian supply movements had come to a standstill during the nights preceding the German assault.

In many instances the Germans were painfully short of artillery for area targets while the Russians always had plenty of multibarreled rocket launchers and long-range heavy mortars. These were the most suitable weapons to cover an area with surprise fire and to protect flanks.

During position warfare the Germans made up for this deficiency by flexible artillery tactics which included many improvisations. They fired mass concentrations on single point targets when all batteries within range would fire one round. If, for instance, eighty batteries were within range of a target, it would be hit by eighty rounds on one single command. As a result, the individual batteries achieved a maximum concentration on a given area with a minimum expenditure of ammunition. The effect was excellent and this procedure had the additional advantage of frustrating all enemy attempts to detect the location of individual batteries by sound range.

Whenever there was a shortage of antitank guns and whenever defensive sectors were overextended, field howitzers and antiaircraft guns were used as antitank weapons by the Germans. They were emplaced in rear area strong points and were given the mission of stopping at point-blank range all enemy tanks and assault forces which might break through. The field howitzer batteries frequently consisted of only three

guns which, however, proved fully sufficient for routine missions particularly when ammunition was in good supply. A Russian cavalry division which had broken through in the 97th Light Infantry Division sector in the winter of 1941 was routed by field-howitzer fire from all directions.

On 26 July 1941 another German infantry division committed its entire artillery regiment for antitank defense against an enemy corps north of Lvov. After the Russians lost a large number of tanks they were no longer in a position to continue the attack. In later years armored break-through attempts repeatedly failed due to the improvised antitank defense system of the artillery. The standing operating procedure for light artillery batteries prescribed that only three guns were assigned to purely artillery missions whereas the fourth was to be employed as antitank weapon.

Although the inaccuracy resulting from wide dispersion made rocket launchers generally unsuitable as antitank weapons, they occasionally proved effective in massed fire. Thus, during the fighting around Minsk in July 1941, an armored thrust launched by the Russians from the woods south of the city was stopped with the assistance of two rocket launcher batteries. In massed fire they scored some direct hits on tanks and succeeded in shooting the turret off one tank.

Massed fire by several rocket launcher battalions against an enemy armored attack echeloned in depth had a particularly strong impact on enemy morale. During the fighting near Voronezh in mid-July 1942 an armored thrust, launched by the Russians from cover of nearby forests, ground to a halt in the face of rocket-launcher fire. Several tanks attempting to infiltrate through gullies were stopped by the fire of some 300-mm. mobile launchers. Particularly in this case the psychological effect was greater than the material damage. The tanks stopped and the crews dismounted and ran away. The other tanks which formed the main spearhead turned back in the face of 320-mm. incendiary rockets. Actually, rocket launchers were not intended for fire on point targets or the destruction of tanks.

III. Combat Engineers as Infantry

When critical situations developed in wide sectors the Germans were often forced to employ combat engineer units as infantry. But this expedient backfired because many essential and almost irreplaceable engineer specialists were lost in combat. This wasteful dissipation of valuable personnel had to be repeated over and over again despite the fact that the responsible commanders were fully aware of its disadvantages. Necessity knows no laws; in critical situations every available man had to be committed at the front. The employment of combat engineers as infantry was very tempting because they were trained for combat and also because they were exceptionally good soldiers. Many commanders were prompted to commit them as infantry when the situation did not fully justify the change. This was all the more regrettable since it was none other than the infantry which had to pay for the improper utilization of the engineers. In extreme emergencies it was of course necessary to use engineer units as infantry. On many occasions the courage and staunchness of the engineers saved the day. For example, when the enemy broke through southwest of Rzhev in 1942, a corps engineer regiment, all engineer units of one division, and even all the construction engineer companies and some of the road-building battalions from the vicinity were committed to stop the Russian thrust into the rear of Ninth Army. The engineers halted the enemy advance and allowed the tactical command sufficient time for countermeasures which eliminated the danger. (Map 1)

PART THREE

IMPROVISATIONS IN THE FIELD OF SUPPLY AND TRANSPORTATION

The German supply and transportation system in Russia was greatly dependent on improvisations because of the peculiarities of terrain and climate. From the outset of the campaign, supply columns were improvised with motor vehicles of every type which had been requisitioned from private owners. They did not fully replace standard military columns since some of the vehicles were in poor condition and therefore of little service. In addition, the problem of replacing spare parts for so many different types of trucks caused incessant difficulties. Yet, most of these vehicles were in service for many years and some of them lasted for the duration of the war.

Chapter 5

Indispensable Expedients

I. The Panje Column

In Russia, motorized transportation was useless many months of the year. During winter and muddy periods the entire supply and transportation system would have been completely paralyzed if supply columns of *Panje* wagons or *Panje* sleighs had not come to the rescue. These vehicles were in use throughout the Russian campaign and were looked upon as vital for the prosecution of the war.

When the German armored and motorized units swept across the dusty plains of Russia during the summer of 1941, nobody paid much attention to the insignificant little peasant horses of the Russian steppe. The tankers and truck drivers could not fail to notice the industrious little animals pulling heavily loaded peasant wagons cross-country whenever they were pushed off the road by the modern mechanical giants. They were looked upon sympathetically, but what was their performance compared to that of the steel colossi and multiton carriers? Any comparison obviously was out of the question. Many a man dismissed them with a disdainful gesture and the words: "A

hundred years behind the times." Even next to the heavy cold-blooded draft horses and the tall mounts of the infantry divisions their dwarfish cousins seemed slightly ridiculous and insignificant.

A few months later the *Panje* horse was judged quite differently. It came into sudden demand during the muddy season when no motor vehicle could operate and any number of cold-blooded horses could not move the heavy guns and ammunition. How were the advance elements to be supplied when they were stranded without provisions? By *Panje* columns. Who brought the urgently needed ammunition to the front when the organic divisional supply columns were stuck in the mud as far as fifty miles to the rear of the advance elements? Again the *Panje* column. Who was capable of moving gasoline from the railheads to the mechanical colossi even through the deepest mud? The *Panje* horse. By what means of transportation were the badly wounded to be transported when the most modern ambulances could no longer advance in the mud? The answer was always the *Panje* horse and wagon. From then on they became faithful, indispensable companions of the field forces. In winter the *Panje* horse proved even more essential. The *Panje* sleigh became the universal means of transportation when motor vehicles were incapacitated and roads were snowbound or nonexistent. During the first months of 1942 some panzer divisions had as many as 2,000 *Panje* horses but hardly a single serviceable motor vehicle. For that reason they received the nickname "*Panje* divisions." This unexpected turn of events made the veterinarian the busiest man in any panzer division.

A good idea of the role played by the *Panje* horse may be gathered from an incident which occurred to the 51st Rocket Launcher Regiment when it was moved into the Vitebsk area in January 1942. After having lost most of its vehicles during the battles for Moscow, the regiment was in the midst of reorganization when it was suddenly called upon to participate in the defense against a major enemy break-through at Toropets. The organic prime movers were either unserviceable or had been lost in previous battles. Only a few trucks in poor condition were available. Snowstorms and high snowdrifts at a temperature of —22° F. impeded all motor traffic on the roads. Enemy spearheads were approaching the vicinity of Vitebsk, Velizh, and Velikiye Luki.

In this emergency two rocket launcher batteries were hurriedly mounted on sleighs. Each battery of six 150-mm. launchers was assigned seventy-five *Panje* horses and three ammunition sleighs for each launcher. After they had crossed the frozen Dvina River the two batteries were committed for the relief of Velizh as part of a reinforced corps. Because of the heavy weight of the ammunition — each projectile weighed approximately 110 pounds—the few remaining trucks had to use the Vitebsk-Velizh highway after it had been cleared of snow and mines. During this emergency march the local model of low, small sleighs usually drawn by one or two *Panje* horses proved to be the only effective means of transportation. The large sleighs supplied by the German Army were too heavy and far too wide for the narrow tracks made by native sleighs. Moreover the harness of the *Panje* horses which had to be used in this emergency was suitable for only limited loads. Despite very difficult terrain conditions the rocket launcher batteries reached the city in time to relieve it. On the other hand, four medium howitzers drawn by heavy German horses never reached their destination.

There was not a single German military agency in Russia which was not forced to employ *Panje* vehicles or columns during winter, not even excepting the Luftwaffe. German mechanization had not made sufficient progress to cope with the Russian mud or terrain conditions in winter. As a result German motor vehicles were incapable of replacing native means of transportation despite the fact that the latter were "a century behind the times."

II. The Corduroy Road

War could never have been waged in the vast swamp regions of Russia had they not been made accessible by improvised corduroy roads. These were the most important static improvisation of the entire Russian campaign and many operations in swampy forests and in the mud of northern and central Russia were feasible only because of the construction of such roads. The first corduroy road was built soon after the Germans crossed into European Russia; the last one during the westward retreat across the German border. In the intervening period hundreds of miles of corduroy road had to be built or repaired during the muddy seasons in order to move up supplies and heavy equipment. At the beginning of the war it was often sufficient to construct a cordurory road 25 to 100 yards long to get hundreds of bogged-down vehicles back on the move.

During the thrust on Leningrad in mid-July 1941 an entire panzer corps bogged down in the swampy forests, separating the corps from the Luga River. For several days the corps was unable to assist its hardpressed advanced elements which were surrounded in a bridgehead on the other side of the river. Only corduroy roads built with considerable effort could restore the former mobility of the corps. In another instance, in 1942,

Eleventh Army had to abandon a planned offensive in the direction of the Neva River because corduroy roads could not be built in time.

The swamps along the Volkhov River were impassable because there were no usable roads. The construction of corduroy roads was the only means of overcoming such terrain difficulties. Since Russia lacks rock and gravel but has an abundance of timber in the central and northern parts, the construction of concrete or paved roads was impossible and corduroy roads became the only feasible substitute.

In constructing these roads it was important to select logs about ten inches in diameter and place them in several layers. As in the superstructure of a bridge, stringers, double layers of crossed logs, and siderail lashings had to be used. The guard rails had to be wired because nails could not be used. The cross logs had to be topped with a layer of sand—not dirt—or, when no sand was available, with cinders or rubble. Time and personnel permitting, the top layer of logs was to be levelled off. Only such thoroughly constructed corduroy roads could stand the strain of constant traffic.

The crossing of the many small swamps found along almost any Russian road caused many special difficulties. It was at these points that the supply convoys got stuck when the heavy trucks of the motor transportation regiments sank in. As a result, serious traffic disruptions lasting many hours and sometimes even several days occurred quite frequently. Over and over again the convoy commanders made the same mistake of failing to wait until the roadbed was repaired by the construction of corduroy roads. Instead, they believed that they could force their way through. The flat swampy stretches, which could have been repaired within a relatively short time before they were completely torn up, were soon in such a condition that their restoration became extremely difficult. The road had to be closed to all traffic since it had become impassable and the swampy stretches obstructed the flow of traffic. Frequently repair work could not be undertaken in time because the road construction engineers had no motor transportation and therefore arrived too late at crucial points. In general, the construction of a corduroy road proved sufficient to bridge small swamps. But whenever swamps were too deep a regular bridge had to be built across them.

Corduroy roads had a detrimental effect on the speed of movements since they slowed down traffic. The average march performance of foot troops dropped to two miles an hour whereas motor vehicles could cover about five miles an hour. Traveling along a corduroy road on foot or by motor was very strenous, and equipment, especially sensitive instruments, suffered from incessant concussions. These roads complicated and slowed urgent movements of reserves in critical situations.

In the Leningrad area there was not a single serviceable hard-surface road leading east toward the German front. (Map 5) In this sector the local army commander was wholly dependent upon two long corduroy roads that covered a total distance of eighty miles. Since they were the only arteries for troop movements and supply traffic, they were used by day and night and their maintenance therefore presented many problems.

In the vicinity of Leningrad two types of construction were commonly used: the heavy corduroy road built over a foundation of five log stringers and the light one which was placed directly on the ground. The two layers of cross logs forming the roadway consisted of logs about five inches in diameter that were secured on both ends by guard rails which in turn were anchored to the ground by drift pins and wire loops. The road was just wide enough for one truck because longer logs could not be procured. Turnouts were built at 1000-yard intervals. Special traffic-regulating detachments directed all movements along these roads.

Chapter 6

Other Expedients

I. Improvisations in the Construction of Bridges

In European Russia temporary bridges were built almost exclusively of wood because iron and steel were scarce. In general, the first construction was a wooden emergency bridge which was not secure against the danger of floods. Later on, this bridge was usually replaced by a permanent structure above flood level. Whenever it was possible, attempts were made to construct double-track bridges. GHQ engineers, bridge-construction engineers, or ordinary construction battalions were usually employed for the building of the first temporary bridges. The bridges above flood level were built by bridge-construction battalions and Organization Todt [*Ed*: paramilitary construction organization of the Nazi Party, auxiliary to the Wehrmacht] personnel. The local civilian population served as auxiliaries and were paid for their services.

During the spring of 1942 one division was ordered to move from Kiev across the Seim River to the east. The floods were assumed to have receded by then, but this was not the case and no bridges above flood level were available. A low emergency bridge had to be quickly constructed. No engineer units were within reach because they were all at the front. There was therefore no other choice but to recall one competent officer and some technicians from the front and to build a 600-foot bridge and a 450-yard corduroy approach road with the help of local civilian labor. The work was completed within five days with the help of 500 women volunteers. These native women were well paid and fed; they performed their heavy work in the best of spirits.

The hauling of the essential lumber and the procurement of nails and iron straps always constituted great problems, mainly because the engineers were chronically short of organic vehicles. Timber-and-nail stringers had to be substituted for the long steel I-beams which were not available.

II. Improvised Road Maintenance

Army and paramilitary construction units were responsible for keeping roads and highways in serviceable condition. This meant hard work and required a lot of manpower, particularly in spring. Special roads were reserved for armored vehicles and maintained with particular care. Along these roads the construction units had to build bridges or fords for heavy tanks and assault guns since the existing ones usually could not carry such heavy loads. These improvised methods of improving the road net facilitated quick movements of entire units and reinforcements which were to be transferred from one sector to another. They contributed decisively to the success of many defensive and offensive operations.

III. Deceptive Supply Movements

Supply vehicles were frequently dispatched along certain routes in order to deceive the enemy and make him believe that these movements meant the relief or arrival of troop units. Dust raised by motor or horse-drawn vehicles behind the front lines also deceived the enemy. The vehicles dragged tree trunks or brushwood along the roads in order to raise more dust.

IV. Invasion Barges as Means of Transportation

During the course of preparations for a landing in England in the late summer of 1940, the Germans built invasion barges, the so-called Siebel ferries, in record time and put them through various tests. These ferries were equipped with four 88-mm. guns and an appropriate number of 20-mm. Flak guns which could be fired at air, land, or naval targets. Powered by obsolete aircraft engines, these ferries reached a speed of four knots. They were actually used for transportation on Lake Ladoga, in the Mediterranean, and in the Straits of Kerch where they performed well.

V. Transportation over Frozen Waterways

Most rivers in European Russia freeze during winter and the ice was frequently used as a roadbed for supply routes. For this purpose the roadway was reinforced by blocks of ice and, whenever the ice grew thinner, by rafts. Such improvised supply routes across and along rivers could be found in all parts of the Russian theater. Leningrad, for instance, was supplied over ice roads during many months of the year and, during the later stage of the siege, even by a railroad that crossed the deeply-frozen Lake Ladoga. The Russians also used their most important inland waterway, the Volga, as a main traffic artery for motor vehicles and sleighs during the winter months.

In East Prussia the entire supply of Fourth Army moved over ice bridges across the Frisches Haff in February 1945. More-

over, during the winter 1944–45, elements of Third Army were supplied with rations, ammunition, and equipment over an ice route across the Kurisches Haff.

VI. Fuel Conservation Expedients

Forced to apply strict conservation measures because of the gasoline shortage, which gradually increased during the war, the Germans introduced wood-gas generators in ever greater numbers. At first these were installed on supply trucks used in the zone of the interior. Fuel conservation measures had to be imposed on combat units soon afterward but the conversion to wood-gas generators was impracticable for tactical reasons. The railroads had to carry all supply as close as possible to the front and were used even for minor local troop movements. In the Tilsit area in East Prussia ration and ammunition trains moved as close as 500 yards behind the front line. On the lower Memel front a narrow-gauge lateral supply railroad was built at 500-yard distance from the main line of resistance.

These measures alone were far from sufficient. The field forces therefore introduced expedients on their own initiative. Every empty truck had to take a second empty in tow. With the exception of certain staff cars no passenger vehicles were allowed to undertake individual trips. Passenger vehicles had to be towed by trucks even during troop movements. These and some other similar measures subsequently became standing operating procedure and their enforcement was strictly supervised. They did not alleviate the over-all gasoline and oil shortage but it was only by their enforcement that it was at all possible to maintain the most essential motor traffic.

VII. Railroad Tank Cars Towed Across the Baltic

(Map 4)

Continuous air attacks during 1944–45 drained Germany's fuel reserves and reduced her means of transportation. The heavy losses of tank cars caused a great shortage of vehicles capable of transporting fuel by rail. Seventy tank cars immobilized in Memel were therefore urgently needed. But it was no longer possible to move them out of Memel because the city was surrounded by Russian forces. Nor were there any suitable vessels on hand that could transport tank cars across the sea. Various expedients were considered in an effort to find a way out but none promised success. Finally an engineer officer calculated that empty tank cars could float on the sea if they were sealed airtight. On-the-spot experiments immediately confirmed this theory. Local naval units instantly received orders to tow all the tank cars from Memel across the Baltic to the nearest port with railroad facilities. Despite all doubts expressed by the Navy, the army commander insisted on the execution of this order. The first vessel with five tank cars in tow arrived in Pillau, west of Koenigsberg, in the fall of 1944 after a night journey of 110 miles across a fairly calm sea. The cars were undamaged upon arrival and were put into service without delay. Thereafter these phantom voyages continued in the same manner night after night with the number of cars in tow varying between eight to ten per convoy. Everything went according to plan. Only toward the end of these curious railroad-sea convoys was it found that several cars had broken loose because of heavy seas and had floated away from their towing vessel. They caused considerable excitement in coastal shipping when they were first discovered and reported as enemy submarines. Naval planes and patrol boats immediately put to sea to observe this enemy threat from closer range. To everyone's relief the dangerous submarines turned out to be the turret-like superstructures of the tank cars which had been lost at night and were now rocking on the high seas. The runaways were soon caught and towed into port.

Chapter 7

Supply by Airlift and Aerial Delivery Containers

I. The First German Experiments

For the Germans, dropping supplies by parachute to encircled units from battalion to army strength had all the characteristics of improvised operations. At the beginning of the first winter in Russia, the Army High Command asked the Luftwaffe to give immediate assistance to isolated or temporarily encircled units by dropping rations, medical supplies, and ammunition in aerial delivery containers which were originally designed for the supply of parachute units in action. In most cases these missions were successfully accomplished in a spirit of unhesitating co-operation between the services.

The need for the first airlift operation arose in 1942, when major elements of Eighteenth Army were trapped in the Demyansk pocket and Hitler ordered that they be supplied by air. The First Air Force was given this mission and assigned three groups of Junkers transport planes as well as some cargo gliders to carry it out. The chief supply officer of the air force formed a special air transport staff which, in co-operation with the responsible army agencies, carried out the supply operations in accordance with requests received from the encircled units.

An adequate airstrip was available within the pocket. The surrounding terrain could be used as a parachute drop zone. The enemy territory to be crossed was narrow and fighter cover was available throughout the flight and during the take-off from the airstrip. There were but few days on which the air lift was interrupted by snow storms, the formation of ice, or fog on the ground. Under such favorable circumstances it was not too difficult to maintain the fighting strength of the encircled forces.

On return flights the carrying capacity of the aircraft was taxed to the utmost since they were loaded with sick and wounded, official and soldiers' mail, and sometimes even with scarce matériel in need of repair. Although few planes were lost through enemy action, the rate of attrition from wear and tear was very high, requiring constant replacement of the transport planes. Because of increased demands by other sectors of the front and the low rate of production, it was even necessary to employ training planes in order to fill the gaps that developed.

In addition to regular airlift operations, aerial delivery containers were dropped by bombers to various isolated units which were in immediate need of supply. In round-the-clock flights the bombers dropped their containers at the lowest possible altitudes despite strongly increased antiaircraft fire. These missions were very costly and put the personnel to a severe test. During February 1942, I Air Corps flew 1,725 bomber sorties in direct support of ground operations and 800 supply missions for the Army; by March the supply missions required 1,104 bomber flights. These figures clearly indicate that great numbers of bombers were diverted from their original purpose and employed in an improvised supply operation.

The Demyansk pocket was eventually relieved and in the opinion of top-level Army experts the air supply operations had been of decisive importance in enabling the encircled forces to hold out.

II. The Stalingrad Airlift

As a result of the above experience Hitler ordered that Sixth Army, which was encircled in Stalingrad during the winter of 1942, be supplied by air. Goering accepted the assignment without opposition although his assistants raised strong objections. The Fourth Air Force was charged with the mission of transporting 500 tons of supplies per day to a suitable airfield near Stalingrad. The experiences of the past winter indicated that only 50 percent of the planes could be fully operational at any given time and that therefore 1,000 transport aircraft carrying an average load of one ton each were required. This calculation did not take into account adverse weather conditions or losses by enemy action. Germany had just about that many transport planes but they were scattered all over Europe. The organizational machinery needed to concentrate most of these planes in the Stalingrad sector, and to improvise the essential procurement and transportation measures, reached truly gigantic proportions.

The circumstances surrounding this venture clearly indicated that it was doomed to failure and Luftwaffe experts therefore seemed extremely skeptical. That their misgivings were justified became obvious when the Russians continued their advance and captured most of the departure airfields within easy reach. As a result many aircraft were lost while they were grounded for repairs. The approach flights led over an ever-widening strip of enemy-held territory which soon extended beyond the range of German fighter cover. Losses in men and matériel were replaced by crews and aircraft from the training commands, so that virtually all training of bomber crews came to a standstill during the winter of 1942-43. By the following spring the Stalingrad airlift accounted for the loss of 240 training crews and 365

training aircraft. The training program did not recover from the effects of these losses until 1944.

Inclement weather also played its part. Heavy snowstorms disrupted all air operations for days on end. Russian fighter and antiaircraft strength increased steadily. Nevertheless, the German crews did their utmost to accomplish their mission which, however, was far beyond their capabilities. The amount of supplies which eventually reached Sixth Army was small and could not avert the impending disaster.

Airlift operations in support of entire armies constitute a task which can only be accomplished after careful planning and preparation and then only by an air force which has all the necessary means at its disposal.

Chapter 8

Supply and Transportation Problems in the Arctic

Most of the supply and transportation problems in the arctic were caused by terrain difficulties, by the virtual absence of routes of communication, by the arctic winter weather with its abundance of snow and ice, and finally by the fact that all sea traffic from Germany to northern Finland was dependent on the navigability of the Baltic. From this arose the need for numerous improvisations.

In the absence of roads that could be used as traffic arteries, the transportation problem could be solved only by the use of very narrow conveyances which could move across open country, through swamps of little depth, and through snow. The ideal means of transportation was the Finnish cart, a narrow two-wheeled vehicle drawn by a small horse. In addition the Germans used self-sprung drag sleds formed of tree forks, which the Finns called *purillas*, pack animals, and human pack bearers. Reindeer served as draft animals during the winter. These reindeer were purchased with the assistance of local experts and given some time to get accustomed to the German soldiers who were to be their new handlers. With its highly developed sense of smell the reindeer does not take to strangers and is likely to run away. For the transitional period of adjustment it was therefore decided to hire the Lapps who had hitherto handled the reindeer. The next step was to train the troops in the handling and care of these animals. In summer the reindeer roam on the open range like any other wild game and can only be classified as such, whereas in winter they become domesticated animals. Even the methods of harnessing and driving reindeer are unusual and must be learned. Each division received one reindeer transport column with fifty reindeer for the primary purpose of facilitating the supply of raiding detachments and reconnaissance patrols. Partly because of foreign exchange considerations the Germans employed relatively few reindeer whereas the Russians organized an entire reindeer division and committed it in midwinter after excuting a major enveloping maneuver on the southern flank of the German arctic front. In this operation the Russian troops and all their equipment were transported on reindeer sleds.

During the unusually severe winter of 1941–42 the Baltic Sea was frozen over for several months and it was not until several weeks afterward that freight traffic was partly restored. Out-

side the icebound Finnish ports supplies were transshipped to lighters for which a narrow traffic lane could be kept open by a light ice breaker. At times these lighters were unable to come alongside the freighters. In such instances supplies had to be transferred to the lighters over boardwalks laid across the ice. This additional handling had to be taken into account in the packing of supplies at their points of origin.

Supply by airlift was an emergency measure to be employed only when all other means had failed. Under the terrain conditions encountered in the arctic, landings in winter could be made on the frozen surface of lakes, whereas in summer the use of medium and larger-sized land-based aircraft was altogether out of the question. Special crews therefore had to be trained for dropping supplies by parachute. Airlift operations also proved extremely valuable for speeding up the evacuation of wounded from the arctic wilderness.

PART FOUR

TECHNICAL IMPROVISATIONS

Chapter 9

Clothing and Equipment

Improvisations of clothing became necessary when the German Army was suddenly faced with the prospect of a winter campaign in Russia. To alleviate the lack of adequate clothing during the winter of 1941–42, several divisions helped themselves by organizing large sewing workrooms in near-by Russian cities. From used blankets and old clothing, local workers produced flannel waistbands, ear muffs, waistcoats, footcloths, and mittens with separate thumbs and index fingers. Sheepskins were tanned and transformed into coats for sentries and a limited number of felt boots were manufactured in small Russian workshops. It was possible to requisition fur garments and felt boots from local inhabitants for a small number of men. Some winter clothing was also acquired from dead enemy soldiers. Fur-lined coats, warm underwear, gloves, and ear muffs of regular winter issue did not arrive from Germany until the early spring of 1942. During the first crucial winter the available supply was sufficient for only a small percentage of the forces. The clothing of the great majority of men was not nearly adequate since few of them had more than one item of winter clothes. Whoever possessed extra underwear wore one set on top of the other. All supplies of underclothing in the divisional and army dumps were issued. Eventually every man was able to protect his head and ears to some extent by using rags and waistbands.

Effective relief gradually reached the front once the so-called fur collection campaign got under way throughout the Reich. This campaign was by far the greatest and most valuable improvisation in the field of clothing. Even though the outfits were of varied appearance they fulfilled their purpose. If it had been started earlier many casualties could have been prevented during the severe winter of 1941–42.

At the beginning of the war the German armed forces were quite unfamiliar with the geographic data and climatic conditions of the far north. German clothing and equipment allowances failed to take into account the peculiarities of warfare in the

arctic. The troop sent to this theater were unable to operate effectively until they were issued the same clothing and equipment as mountain divisions. This consisted of laced mountain boots instead of standard infantry boots, mountain trousers and tunics instead of regular issue, visored mountain caps with turn-down ear and neck protectors instead of the ordinary field caps, and rucksacks in the place of field packs. Every man was issued complete skiing equipment.

Intermediate and lower commands improvised many other items of clothing and equipment but most of them were of little consequence or of limited application and are therefore not mentioned in this study.

Chapter 10

Shelter

The construction of temporary shelters assumed great importance during the fighting in the far north. A lean-to, set against the wind, topped with branches and twigs, served as shelter for raiding detachments in the arctic winter. To obtain heat two logs were split lengthwise, placed on top of one another at the entrance to the shelter, and set afire. This reflecting fire produced sufficient heat even in very low temperatures. In many instances igloos were built and used as emergency shelters. Portable Finnish plywood structures and Swedish canvas tents were provided as semipermanent shelters to protect personnel from the rigors of the arctic winter. Motor vehicles and the recoil fluids in guns were kept from freezing by the use of various kinds of stoves of improvised construction.

Chapter 11

Weapons

There were few improvisations in the field of weapons. The field forces made minor improvements but never went as far as to create new weapons. Captured weapons were not popular with the field forces but frequently had to be used, in order to compensate for German shortages. Captured artillery pieces were organized into batteries and battalions or employed individually. Most of the time they were committed on secondary fronts or in the depth of the battle position as antitank weapons. Their performance was rarely equal to that of German guns. For many of these pieces no firing data were available, others had no sighting devices, and still others were without adequate transportation facilities. Whenever several types of captured guns were assigned to one unit, as in the Crimea and other secondary theaters, the defects and difficulties multiplied in proportion to the variety of types. Lack of ammunition soon put an end to the employment of many of these weapons.

One of the exceptions to the above observations was the Russian heavy mortar which was very popular with the Germans. This weapon was easy to operate, effective, and justly feared. Captured Russian mortars were often organized into batteries and committed at the front with German crews. By request of the field forces, mortars of the same type were produced in Germany in 1944. Even then they could not be issued at all or only in limited quantities because the necessary ammunition was not available at the front.

Painting silhouettes of the most common types of enemy tanks in front view and profile on the shields of artillery and antitank guns proved a very practical antitank defense aid. The vulnerable points were marked in red. In addition there was a warning sign on the shield: "Observe carefully, take good cover, and open fire at a maximum range of 1,000 yards." The distances were indicated by markers on the ground at 200-yard intervals in all directions so that reference points for the exact distance were always available.

As the standard German antitank weapons proved ineffective against the Russian T34, light howitzers as well as captured Russian 76-mm. guns were used as direct-fire weapons against tanks. In addition, hand grenades and mines were produced locally and used as makeshift antitank weapons. During periods of position warfare, the engineers prepared large quantities of wooden-box mines. The bodies were made of impregnated wood and the mines were fired by pressure. The introduction of the *Panzerfaust*—a recoilless antitank grenade and launcher, both expendable—completely superseded previous improvisations in the field of antitank weapons.

Sunflower oil proved excellent for the care of weapons. During the winter of 1941–42 sunflower oil was the only available lubricant which would permit proper functioning of weapons in the cold climate that prevailed on the Russian front. Unfortunately it was produced only in the southern regions and even there not in sufficient quantities.

In general, the existing German weapons were adequate for arctic operations. The need for additional antiaircraft weapons was met by mounting light artillery pieces, barrels pointing upward, on revolving platforms. For operations against Russian raiding parties on the Kandalaksha front, captured Russian tanks were placed on flanged-wheel cars and thus transformed into armored cars on rail. Cross-country mobility was stressed in the choice of weapons but not all requirements could be met. To increase the mobility of the artillery, one pack artillery battalion replaced a field howitzer battalion in each artillery regiment. Later the arctic theater was assigned a recoilless gun battalion. Although this battalion was not nearly so mobile as the pack howitzer units, it was more suitable than ordinary light artillery. Moreover the number of mortars was greatly increased in order to make the infantry more independent of artillery support in difficult terrain. Most rifles issued to the infantry were replaced by submachine guns because the former proved ineffective during combat in the wilderness.

Chapter 12

Technical Training for Arctic Conditions

The improvisation of arctic clothing, equipment, and weapons had to be complemented by special training. The most important objective in this technical training was to make an indefatigable and accomplished skier of every soldier, regardless of where he might be employed. The German training methods deviated from the Finnish since the Finns stressed cross-country skiing. Accustomed to the use of skis as a means of locomotion from their early childhood, the Finns were capable of covering distances of twenty-five to thirty miles a day even during heavy snowstorms. The German skiing technique always emphasized downhill runs. The type of bindings used by the two nations fully expressed the difference between their skiing techniques. Finnish skis merely had a loop to hold the pointed boot whereas the Germans used a regular binding like the Kandahar and mountain boots with toe plates and grooved heels. The Finnish binding did not permit the execution of speed turns while the German binding which had a tight hold on the foot made it impossible to discard the skis instantaneously whenever the tactical situation required it. Although the Finnish method had great advantages in the arctic, where the downhill technique is of little use and where one can easily dispense with speed turns, German skiing instruction continued to follow the Alpine method. The training program included certain theoretical courses such as those on the proper treatment of skis, on the best way to dress in arctic temperatures, and on protecting oneself from frostbite. Special instruction in the handling and firing of weapons by troops on skis played an important part. The training program was standardized throughout the entire theater; it culminated in a field exercise under combat conditions continuing several days and in winter sports competition.

Every replacement assigned to the Kandalaksha front first had to undergo a two-month special training course at Kairala in order to adjust himself to the living and combat conditions of the arctic. The local command had issued explicit directives for this orientation course, including examples of the proper tactics to be employed in the wilderness north of the Arctic Circle. These directives were brought up to date by the inclusion of the most recent tactical lessons, above all in small unit actions. Thus, for instance, pamphlets were issued on the subject of long-distance marches, march security, combat and reconnaissance patrols, outposts, strong points, guard duty, combat intelligence, movement of supply through enemy-infested areas, and operations in snow and ice as well as in primeval forests and swamps.

This type of training was designed to adjust a newcomer to his environment and its peculiar climatic features. Moreover it was to stimulate and further the soldier's natural affinity to primeval forests and vast spaces and to assist him in orienting himself, tracking down the enemy, avoiding ambush, and interpreting footprints and ski tracks. In fact, it was a kind of "Cowboys-and-Indians" training course. Proper attention was devoted to everyday problems such as passing the night in the open in the arctic winter, constructing a brushwood shelter or an igloo, building a reflecting fire out of split logs, finding food in the wilderness, and applying first aid in case of accident or battle injury. A newcomer had to acquire a great deal of knowledge on such subjects before he was qualified to be assigned to a combat unit without jeopardizing himself and his comrades. The numerous field exercises often lasted several days and took place at great distances from the training center. They were conducted under the continuous threat of enemy raids and, almost without noticing it, the novices to arctic warfare became adjusted to the perculiarities of fighting and living in the extreme north. Whenever the combat troops were transferred to quiet sectors, they continued to receive supplementary training which ranged from improving their skiing technique to the proper care of weapons, equipment, clothing, and rations, and included protective measures against frostbite. Courses in the proper treatment of reindeer had to be repeated over and over again in order to prevent the loss of any of these animals which were so difficult to replace. Thus even the experienced combat soldiers in the far north could always acquire additional knowledge.

Chapter 13

Improvised Front-Line Propaganda

During the Russian campaign the Germans made extensive use of frontline propaganda and achieved remarkable results in many cases. The following incident occurred during the winter of 1941–42 when 6th Panzer Division launched a series of limited objective attacks to the west to secure the lines of communication of the German units facing the main Russian assault from the east. (See *Snail Offensive*, p. 7) In this instance, front-line propaganda was improvised very effectively after the second thrust. Among the many wounded and dead Russians collected on the battlefield was Vera, an eighteen-year-old female sergeant. After a few hours treatment for shock, she recoverd from her horrible experience which she compared to the "end of the world." Vera was a medical auxiliary with the battalion that had held the main strong point and had been completely annihilated with the exception of one officer and fourteen enlisted personnel.

During her first days as a prisoner of war she was under a severe emotional strain. Her interrogation confirmed other intelligence on enemy dispositions gathered from statements of other prisoners. By her own admission she was a member of *Komsomol* [*Ed:* the Russian communist youth organization], that is to say, a convinced Communist. Before she was evacuated with the next transport of prisoners she innocently requested permission to return to her former regiment. Asked for the reason for her request, she replied in a serious and calm tone: "I want to tell my comrades that it is hopeless to fight against such weapons and that the Germans will treat them well. They should come over to the German side." Asked whether she had any other reasons for returning, she answered: "Yes, I would like to save the life of my friend who is still over there." To the question of whether this was not a subterfuge to escape from the Germans, she replied: "No, I have already stated that I shall return and bring along my friend."

Since she could not possibly give away any German secrets and her self-assured statements seemed trustworthy, her request was granted. Dressed in civilian clothes she crossed the German lines at a point opposite the sector held by her former regiment. German scouts escorted her through the deep, snow-covered forest to a place close to the enemy outposts. She promised to return at the same point once her mission was accomplished.

Several days passed but the girl did not return. After twelve days many people expressed doubts as to her true intentions. But on the fourteenth day the designated front sector reported the arrival of two Russian deserters, one of whom was a woman. It was Vera and her companion. Half exhausted from the long march through the deep masses of melting snow, they arrived at the command post. Vera had an interesting story to tell.

After her return to the Russian lines Vera was immediately interrogated by a *Politruk* [*Ed:* low-ranking political officer] who doubted the veracity of her statements when she told him that she had been treated well by the Germans and was able to escape in civilian clothes because of the carelessness of her guards. For five days and nights she was imprisoned in an ice bunker in the company of criminals under sentence of death and was fed bread and water. When she was questioned again she repeated her previous statements. As a result she was returned to her former regiment, given another uniform and assigned to a front-line battalion as a medical auxiliary. This battalion was waiting for the arrival of urgently needed replacements since it had lost its entire manpower with the exception of one lieutenant and a few soldiers. After she was initiated in her duties she took the lieutenant's map and compass and went to the front. There she surprised a Russian sergeant while he was reading a German propaganda leaflet and persuaded him to desert by telling him of her own good experience with the Germans. She talked to a few more men and told them the same story. They believed her and the story spread like wildfire.

One hour after Vera's return to the German lines the remnants of the sergeant's unit consisting of six men and one machine gun arrived at the point where she had crossed and surrendered. They had overheard the conversation between Vera and the sergeant and decided to follow their example. For several days groups of two to three deserters arrived daily at various points along the front. This provided the division with exact information on enemy intentions and facilitated the planning of further attacks.

With regard to the effect of propaganda leaflets dropped from the air, Vera stated that they were hardly ever read by Russian soldiers because such an offense was punishable by death. Moreover the contents were not believed because of the intensive counterpropaganda to which the commissars subjected them. But she was certain that her former comrades would believe anything she wrote in personal letters. Her idea was taken up and soon this valuable correspondence was in full swing. German patrols delivered her hand-written letters at various points in

the forest near Russian outposts and attached them to branches in the trees. They were easily recognizable by their red markings. The results were unmistakable since the number of deserters doubled within a short time. When, in addition, her voice was recorded and transmitted over loud speakers near the enemy lines, the number of deserters along the entire sector increased so much that it exceeded 400 only three weeks after the start of this improvised propaganda campaign. This figure was much higher than the combined total of deserters on all other sectors of the entire army front. The idea of using Vera as the mainstay of this propaganda campaign proved very effective.

Four days later a few bottles of liquor made a powerful propaganda improvisation that eliminated the danger of a local enemy penetration. After a German attack with limited objective the enemy attempted several strong counterthrusts. The situation became very tense when several Russian tanks penetrated the German lines and the last reserves had to be committed. The tanks were destroyed but some of the enemy infantry succeeded in infiltrating through the German lines. Not many Russians got through at first but more and more followed. In this difficult situation the local German commander sent a civilian with several bottles of liquor to the Russian soldiers behind his line and invited them to taste these samples. They were told that they could drink to their heart's content if they decided to come over unarmed. Slightly inebriated by the first bottles they began to arrive hesitantly and in small groups without arms. As soon as the first men had convinced themselves that the Germans had no intention of killing them, about fifty additional Russians turned up to receive their liquor. They indulged so heavily that they forgot all about their weapons, quite apart from the fact that they were physically incapable of returning to them. Meanwhile a strong German detachment picked up the abandoned weapons and stopped all further enemy infiltration attempts.

PART FIVE
ORGANIZATIONAL IMPROVISATIONS

Chapter 14
The Manpower Problem

I. The Situation at the Outbreak of War

Improvisations in the field of manpower were rarely necessary as long as the war took a normal course and the nation was capable of providing the men needed for new combat units and as replacements. The situation changed when the manpower reserves at home began to run low and special measures had to be taken to make up for the serious shortage of replacements. Even at the beginning of the war, the Germans had to resort to some organizational improvisations, particularly to strengthen the defenses in the West.

At the outbreak of war in 1939, the frontier defense command of St. Wendel in the Saar was ordered to defend that sector of the West Wall which extended from Mettlach to Saarbruecken. Only a very small force of regular troops was available. It consisted of frontier guard units stationed in the Saar prior to the war. To a frontage of seventy-five miles there were altogether two battalions of medium artillery, with one infantry or machine gun battalion to every twelve miles. Reinforcement by second-wave divisions could not be expected for about fourteen days, whereas first-wave divisions were to be made available later on after the conclusion of the Polish Campaign. The number of available antitank guns and artillery pieces of every caliber was ample but there were no gun crews. To form these crews, conscripts from near-by towns who were in the older age groups were to be drafted directly instead of being inducted through regular channels. No preparations of any kind could be made because the frontier defense command was not notified before mobilization. Consequently quite a few of the men had received different mobilization orders and had already left to join their units. Others had been removed from their homes during the evacuation of those districts of the Saar territory that were closest to the front. Nevertheless, crews for the antitank guns were formed without delay and given hasty two-day instruction

courses at their gun positions. Sufficient personnel could be found even for the artillery guns which were organized to form reserve batteries, although the men drafted for this purpose had been trained with entirely different guns.

On the other hand it was impossible to find suitable battery commanders or technical specialists. These reserve batteries were therefore attached to batteries of regular artillery battalions which were part of the frontier defense command. Local border patrol personnel were organized into a regiment with four battalions in order to increase the defensive strength of the infantry and, above all, to obtain personnel acquainted with terrain conditions. Each battalion was assigned to one of the four subsectors along the Saar River. This measure alone amounted to a doubling of the infantry forces and meant the addition of particularly qualified personnel since all the border patrolmen were former noncommissioned officers of the 100,000-man Army.

Even the second-wave divisions activated at the outbreak of the war might be termed improvisations. In addition to a certain number of reservists, many other men had been called up to fill the divisions' ranks. Some of these men had merely undergone a short, eight-week basic training course during the last few years. Others had served during World War I and had never since taken part in any military exercise; their average age was around forty-five. During the winter of 1939–40 the enemy granted the Germans sufficient time for further preparations during which these divisions were consolidated and trained and the men belonging to older age groups were reassigned to service units.

II. The Luftwaffe Field Divisions

The Luftwaffe was still in the development stage when the war began and was experimenting with various forms of aerial warfare. During the course of its operations it was often faced with missions that could only be solved by improvisations. This study describes only those major improvisations in which the Luftwaffe was closely connected with ground operations.

One of the best known Luftwaffe improvisations was the creation of Luftwaffe field divisions. In 1941 the Luftwaffe was at full personnel strength as it was to be greatly expanded after the anticipated rapid conclusion of the Russian campaign. Not only did these plans fail to materialize but, during the winter of 1941–42, the Army was faced with the first major manpower shortage when it ran out of combat troops. On various sectors of the Eastern Front local commanders took the initiative of quickly organizing and committing provisional units composed of Luftwaffe ground personnel, construction battalions, and signal communication units in ground combat. Shoulder to shoulder with Army units, most of them gave a good account of themselves.

As a further step in this direction, Adolf Hitler ordered the transfer of seven divisions from the Luftwaffe to the Army. Goering, the commander in chief of the Luftwaffe, always jealously concerned with his prestige and possibly hoping for a more favorable turn in events, suggested that these divisions remain under the jurisdiction of the Luftwaffe and be subordinated to the Army only in tactical matters. This suggestion was adopted and the Luftwaffe organized ground combat divisions under its own jurisdiction. The personnel of these divisions met with the highest physical standards but the training of the commissioned and noncommissioned officers was totally inadequate for the purposes of ground fighting. The care of weapons and horses left much to be desired. Since the Army was taxed to the utmost, it could provide few instructors and little equipment. Consequently these divisions were sent into combat after receiving only superficial training. They fought as bravely as most other units but their casualty rate was above normal. To the very end of the war, these divisions continued to present a never-ending series of problems to both the Army and the Luftwaffe with the latter obliged to provide a continuous flow of replacements. Time and again the Army had to transfer commissioned and noncommissioned officers to these divisions and provide additional instruction and training so they could serve their purpose.

The consensus is that this improvisation was ineffectual. Despite great devotion and heroism displayed by individual divisions, it would have been preferable to ignore prestige matters and place this valuable personnel at the disposal of the Army without attaching any strings. The policy was not reversed until the last stage of the war when transfers of personnel from the Luftwaffe to the Army finally became unconditional.

III. Maintenance of Combat Efficiency

Delays in the arrival of replacements occurred very early in the Russian campaign. The combat strength of some infantry companies often dropped to an unbearably low level. The first stop-gap measure to be introduced was to screen all supply and service units for men who were fit for front-line duty. When these units were no longer in a position to provide suitable men, others with little or no training were called upon. They were transferred to the infantry as long as they could somehow

meet the physical requirements. Since proper training facilities were rarely available, the combat efficiency of the front-line units suffered considerably by the employment of such replacements. Another expedient was to form rifle companies with surplus personnel from artillery, antitank, or armored units that had lost their equipment and to commit them as infantry.

Many artillery and signal units were forced to release commissioned and noncommissioned officer personnel to the infantry and these arms were soon short of technicians and leaders. Any further transfers were therefore out of the question. In such instances the infantry units short of the minimum number of leaders had to be merged. The personnel and training situation of the field forces improved only after each division was assigned its own field replacement training battalion which guaranteed a satisfactory flow of replacements. During position warfare the divisions in the field were then able to raise the training standards by organizing a variety of courses, but the shortage of combat units frequently forced the command to commit these training battalions as temporary combat units. During the last stage of the war, training and replacement divisions of the various armies as well as Army service schools were often called into action in emergencies. As a result, training organizations that had been built up under great difficulties were repeatedly torn apart and destroyed.

Maintaining the combat efficiency of the infantry divisions despite their continuous commitment and the impossibility of relieving entire divisions presented a special problem. When the fighting raged with full fury for several consecutive weeks, it was impossible to relieve the front-line units by reserves because the situation usually was too critical. Only too often the troops were forced to continue fighting until they were completely exhausted. In order to have at least some small but well-rested assault detachment available, the units alternated in withdrawing a small number of soldiers from the thick of the fighting to give them two or three days' rest behind the lines. For the same purpose headquarters and higher echelon supply personnel up to and including army staffs were committed at the front in rotation.

Since transportation to and from Germany was often disrupted, leaves and furloughs had to be frozen for long periods. Whenever the situation permitted, armies, corps, and divisions therefore established rest camps for the men who were due furloughs. These camps were invaluable in maintaining the combat efficiency and morale of the troops. Another improvisation was the introduction of so-called sponsorships at higher headquarters. Certain staff officers maintained constant personal contact with specific combat units and took them under their wings. Moreover, up to 10 percent of the personnel assigned to headquarters staffs rotated with their comrades at the front to allow them to go on leave or to a rest camp. These measures were of benefit to the troops and improved the relationship between headquarters staffs and combat units.

A very successful improvisation was the introduction of rehabilitation units. Soldiers who had been sentenced to serve extended prison terms but who showed promise of reforming were not relieved of front-line duty but put on parole and transferred to improvised rehabilitation platoons, companies, or battalions. These were committed at critical points of the front. The rehabilitation units had particularly efficient commissioned and noncommissioned officers and gave a good account of themselves. This very effective improvisation soon became a permanent institution which received unanimous approval and was accepted as a good solution not only by the prisoners but also by the officers to whose units they were assigned. In 1944 one of these rehabilitation battalions fought exceptionally well in the encircled fortress of Ternopol in eastern Galicia. When the town fell a number of noncommissioned officers and men of this battalion fought their way back to their own lines under great hazards and hardships.

The organization of indigenous units was another improvisation designed to strengthen German fighting power. Such units were organized in occupied territories and friendly countries, especially by the Waffen-SS [*Ed:* combat arm of the SS; in effect a partial duplication of the German Army]. They relieved German units of minor duties and were also frequently committed as combat units. Their performance at the front was far below the standard of German troops. For this reason the front-line troops usually objected to the employment of indigenous units. On the other hand, many volunteers from prisoner-of-war camps were employed as auxiliaries to replace soldiers transferred from supply and service units. In general they were quite dependable and useful.

Late in the war, when few or no replacements were available, all divisions in the field had to use some of their service troops to form emergency alert units. These were originally intended for the defense of strong points or towns in their rear areas or as security detachments for rear positions; but frequently they had to be committed in the front lines to close a gap and sometimes even for the purpose of local counterattacks.

As another emergency measure, convalescent furloughs granted to sick or wounded soldiers were severely curtailed in order to shorten all periods of absence from the front. But, since it was obvious that combat units could only use fully recovered men, most local military authorities failed to comply with these regulations. They also showed great reluctance in carrying out another order which pertained to the induction of men in advanced age groups who were also affeced by the draft because the age limit had been raised. It was felt that these older men ought to remain in their civilian occupations where they would be able to serve the nation much better than as soldiers.

IV. The Employment of Women in the Armed Forces

The employment of women with the German field forces was not as widespread as among enemy armed forces. During the latter part of the war women were used as clerical and signal communication auxiliaries at German forward headquarters. They took over these duties from men who were thereby released for combat. These women soon became familiar with living conditions at the front and settled down to do an excellent job. In the arctic the possibilities for employing women were very limited. In that region army headquarters was the lowest echelon to which the auxiliaries were ever assigned. The Russians on the Kandalaksha front, however, had divisional signal battalions exclusively composed of female personnel. Female radio operators were frequently identified as members of small Russian commando and sabotage teams dropped by parachute in the arctic. Generally these detachments consisted of one female radio operator and eight men.

In Germany proper the program of substituting female for male military personnel met with a great deal of opposition because it ran counter to well-established military traditions. The responsible administrative officials were very hesitant in introducing this new program but as the war progressed the increasing manpower shortage imposed the extensive utilization of women in a variety of military jobs.

One of the first measures was to employ women as instructors at riding and driving schools and as grooms at remount depots. They were also used as maintenance crews for aircraft at training centers, as parachute riggers, and as refueling personnel at airfields. A great number of women were employed as antiaircraft auxiliaries at fixed Flak installations throughout Germany. Toward the end of the war the percentage of female personnel in several searchlight units rose to 90 percent.

The Russians often used women to work as laborers on construction projects. In one instance some women captured near Orel told the story of a Russian improvisation to provide urgently needed laborers for work on fortifications. The impending German advance on Bryansk in 1941 was to be stopped by a strong belt of fortifications at the approaches to the city. For this purpose 100,000 laborers had to be recruited without delay. Among them were women from the Caucasus who had been hotel employees. One day the entire personnel of the hotel were suddenly ordered to assemble in the backyard. Not allowed to return to their rooms, they were marched to the railroad station where a train was waiting to take them to Bryansk. The work on the fortifications around the city took four weeks. At the end of that period all laborers were released on the spot and left to their fate.

The organization of the Finnish *Lottas* shows how the employment of women can raise a country's fighting power by releasing men. The *Lotta-Svaerd*, a sister organization of the Finnish security corps, had a membership of over 100,000 women and girls. During the war they performed all military duties which could possibly be taken over by a woman, regardless of the proximity of the enemy. *Lottas* were encountered in field kitchens of companies in the front lines. The commander of a Finnish border infantry battalion in a very exposed sector of the arctic front used a *Lotta* as battalion clerk and interpreter. The Finns also employed young boys in army uniforms as messengers and for similar duties.

Chapter 15

The Organization of Special Units

1. Staffs

Special command staffs are often needed to carry out certain types of improvisations. A wise commander will anticipate such situations by keeping special staffs at his disposal for any emergency. This is only possible if all staffs not absolutely essential at the front or in rear area assignments are actually pulled out and thereby made available to the command. The Germans might have accomplished a lot more in this respect. For instance, the commander of XXXVI Mountain Corps was under the impression that a corps staff was not needed on the Kandalaksha front and might be put to better use elsewhere. He suggested that a divisional staff with an expanded supply branch would be quite adequate to exercise the tactical command functions in this area. Although he submitted several suggestions along these lines, they were quickly turned down by army. In similar cases it should always be possible to transfer such a staff without delay, if necessary by air, to a point where it might be urgently needed.

In many instances a command staff had to be suddenly improvised to take over some special mission. After the Stalingrad disaster the staff of XI Infantry Corps was reconstituted from an unassigned corps staff which was hastily organized in the beginning of February 1943. Formed in the area north of Kharkov, it consisted of one general and several general staff officers who happened to be in this area on an inspection trip. The staff was to assume command over three German divisions which had been committed to strengthen sectors formerly held by Hungarian and Rumanian forces. These divisions were without higher headquarters after the collapse of Germany's allies on the Stalingrad front. The lower echelons of the staff were picked from the field units, and a Hungarian signal battalion, later replaced by a small German unit, took care of signal communications. The initial difficulties were gradually overcome. It took five months and required numerous reassignments and organizational changes to transform the improvised corps staff into a regular one. Other corps staffs were improvised in a similar manner and their deficiencies were eliminated step by step until they finally became fully organized corps staffs.

In one instance the improvisation of two special traffic regulating staffs made it possible to withdraw ten divisions and thousands of refugees across the Dnepr River. (Map 6) During the course of the large-scale Russian counteroffensive in August-September 1943, the enemy advanced rapidly from the Belgorod area toward Kiev, and Army Group South had to be withdrawn behind the Dnepr. The crossing of the river, which was 2,500–3,500 feet wide in this area, was complicated by the fact that only a few bridges were left standing. Some of the bridges were threatened by the enemy advance while others had been reached by the Russians before the arrival of the German troops. Every possible step had to be taken to delay the enemy advance and simultaneously accelerate the crossing of the German units over the few remaining bridges.

The long wooden bridge at Kremenchug alone had to serve as a crossing point for ten divisions, six of which were panzer divisions. The XI Infantry Corps was put in charge of the river crossing and was assigned two special staffs to assist in this mission. One staff had to make certain that the march order was observed on the north bank and had to enforce one-way traffic in order to ensure a steady flow of approaching units. The other special staff was employed on the south bank of the river at Kryukov with the mission of assuring the rapid debouchment of the divisions. Although the mission sounded simple enough, its execution presented all manner of difficulties. Even before the previously scheduled withdrawal of garrison installations and unwieldy army and army group supply units had been completed, the situation demanded that the panzer divisions cross immediately. Some Russian parachute troops had meanwhile landed on the other side of the river and their ground forces had begun to cross the river upstream. Only motorized units were capable of reaching the south bank of the river between the bridges in time to restore the situation. In order to give the panzer divisions precedence over other units, it was necessary to stop all traffic and clear the roads for the tanks. For five days mixed columns of all arms extending over many miles camped in the adjacent fields or, wherever this was impossible because of the many swamps, they kept to the side of the road and waited for the signal that would allow them to continue on their way. Their campfires were close to their foxholes. Alongside these columns, or trapped between them, were streams of refugees and herds of cattle.

Only radical measures against traffic violators of all kinds made it possible to put the panzer divisions at the head of the columns. Even more difficult than the approach to the 2,500-foot highway bridge was the exit on the south bank because the streets of Kryukov were very narrow and winding. In addition, the drivers

had a tendency to slow down once they had reached safety on the south bank or to stop altogether to obtain information on the whereabouts of their parent unit. This had a delaying effect and was therefore very harmful. The attempts of mixed convoys to find the right branch of the road and turn off immediately after crossing the bridge also caused major delays. The drivers seemed to forget that many thousands of vehicles behind them were waiting to cross the river. To overcome this difficulty all units were ordered to continue on the highway to the south for twenty miles from the bridge without regard to resulting detours. Drastic steps had to be taken to enforce this order and many control points and even airplanes had to supervise the flow of traffic.

The two special staffs worked with perfect co-ordination and during the first days directed 5,000 to 7,000 motor vehicles a day across the river. Later this rate was stepped up to an average of 8,000 to 10,000 and within ten days a total of 70,000 motor vehicles had crossed the highway bridge.

Simultaneously, three infantry divisions with their horse-drawn vehicles as well as the trains of two additional infantry divisions crossed the river on a railroad bridge covered with planks. Alongside this bridge engineers built an improvised floating bridge for the crossing of the 30,000 civilian vehicles that were routed through the Kremenchug area during the same period.

The special staffs also regulated the traffic across these two improvised bridges. It was particularly difficult to designate the approach routes to the bridges in such a manner that the columns would not cut across each other or, where that was unavoidable, to establish intersections at points where cross-traffic would cause the least disturbance.

Regulation and control of the river crossing topped all other tactical considerations for ten days. Despite so many difficulties, all divisions crossed successfully with their vehicles and it was even possible to get the slow-moving evacuation transports and various supply columns across the river. The rear guards held out long after the time limit set by army and saw to it that even the last immobilized tanks were moved across the highway bridge. Several tanks were coupled by cables and towed by prime movers although permission for their demolition had been given several days before. At Poltava, twelve freight trains loaded with tanks and other valuable equipment stood ready for demolition because enemy tanks had already cut the railroad track connecting Poltava with Kremenchug. A counterattack by German armor cleared the line sufficiently to allow all twelve trains to pass the threatened points and reach Kremenchug.

The two infantry divisions whose trains had been put across the river at Kremenchug had to cross the Dnepr fifteen miles downstream. Some of the civilian columns and most of the herds of cattle were diverted to that crossing point. None of the engineer units in the area had any standard military bridging equipment, motor boats, pneumatic pontons, or civilian shipping facilities. For this reason the two divisions had to resort to whatever expedients they could devise at the time. The last remaining fishing boats were assembled, floats were built from old logs and native wagons without wheels, and some mill boats anchored along the banks were used as ferries.

With these improvised craft soldiers and civilians were moved across the river with all their equipment and possessions. Wagons that were unsuitable for use as ferries were disassembled, floated across, and reassembled on the south bank. Tied to the various makeshift ferries, the horses swam across without resistance. Herd after herd of cattle was driven into the water, but the animals repeatedly shied away from the 2,500-foot-wide river. Only when led oxen were willing to precede them did the mass of the cattle follow into the river accompanied by shouting peasants crossing in boats on both flanks. Slowly and with deafening roars the cattle waded across the 700 to 1,000-foot-wide shallows. Then they suddenly sank into the navigation channel and with heads up swam silently through the very deep and up to 1,000-foot-wide channel until they could set foot again about 350 to 500 feet before reaching the other bank. Herd after herd, 800 to 1,000 head of cattle each, was driven across the slow-flowing river. Even though some herds had been on the move for a month and had covered distances of 125 to 200 miles, there were no casualties. A total of 64,000 horses and more than 80,000 head of cattle swam the Dnepr. The young animals followed separately on large, boarded-up ferries. This completely improvised measure contributed greatly to relieving the bridges at Kremenchug and proved very effective.

The successful completion of the difficult mission may be attributed to the fact that the dual responsibility for the conduct of operations and for the technical problems of the river crossing was vested in the local corps commander. By this arrangement all tactical and technical measures were coordinated under a single man. But a considerable part of the success is to be credited to the efficient special staffs and to the additional crossing facilities—both major organizational improvisations. Yet all these efforts could have been frustrated had the enemy used strong air forces at the right time. However, they were not effectively committed until 90 percent of the forces had completed the

crossing. Then a Russian bomber scored a direct hit on the detonation device installed on the highway bridge which had been readied for demolition. The charge was set off and the bridge was destroyed. At that time, however, the loss of the bridge was not particularly serious because the rear guard tanks and assault guns were able to withdraw across the railroad bridge which remained intact. Before this attack enemy air activity was negligible, and only one light bomb scored a direct hit on the highway bridge. It merely pierced the surface without damaging the vital bridge structure. The vehicles bypassed the small hole which was covered up within one hour. The flow of traffic was not interrupted.

II. Special Formations

A certain number of the organizational improvisations mentioned in this chapter deserved to be permanently incorporated into the tables of organization and equipment of the units concerned. But only a few were officially adopted because manpower and matériel shortages usually prevented the introduction of far-reaching changes. In order to overcome some of the chronical deficiencies, the infantry corps and divisions were forced to use a number of expedients. When they were on the defensive and had to hold overextended front-line sectors without motorized units, they scraped together all the available motor transportation to have at least one motorized battalion or just one company for emergency purposes. These elements used *Panje* wagons during the muddy season and sleighs during the winter. By this improvisation the command had mobile reserves on hand even though they were small.

The formation of so-called *Korps Abteilungen* [*Ed:* provisional corps] was an emergency measure that was also helpful in deceiving the enemy. Remnants of three divisions which had been badly mauled in difficult extended battles were merged into one division with each of the original divisions forming one regiment. The new division was designated *Korps Abteilung* and distinguished by a letter A, B, C, etc. Each provisional corps carried the corps insignia and each infantry regiment was designated by the number of its former division. The regiments drew their replacements from the Wehrkreis* of their original divisions.

The provisional corps had the combat value of an infantry division and fought equally well. The merger had the advantage that the staffs of two divisions with all their organic units became available for reassignment to new divisions or could be used as special staffs or for some other purpose. On the other hand, the new regiments could not be used as battle-tested cadre for newly-organized units. This disadvantage outweighed all benefits that could be expected from the formation of *Korps Abteilungen*. The field forces resented this measure as well as the policy of giving preference to the organization of new divisions with inadequate cadres instead of providing experienced, though weary, front-line divisions with replacements to restore their former striking power. Whenever a new division without sufficiently experienced cadre was suddenly committed in a major battle in the Eastern theater—as happened only too often—it just melted away like snow in the midday sun. The field forces unanimously requested that the battle-tested divisions be reorganized. Yet, as a rule, new inexperienced divisions were sent to the front despite all the damage caused by this procedure.

The provisional corps may have fulfilled their purpose as a temporary measure, but in the long run they proved to be a handicap rather than an asset. If the purpose of this expedient was to eliminate divisions that had not performed well in combat, it would have been better to dissolve them entirely and not to preserve them in parts.

The German experiments with the employment of task forces were more conclusive. In one instance an improvised task force, organized for a specific purpose, played a decisive role in the annihilation battle near Plavskoye in November 1941. The enemy had moved up an armored brigade, which the Germans were unable to match at that time since their panzer forces were heavily engaged in the vicinity of Tula and no armored units of divisional or brigade strength could be withdrawn from that sector. In this emergency Second Panzer Army entrusted a brigadier general on the staff of XXIV Panzer Corps with the mission of improvising a panzer brigade. Time was of the essence. Discussions with other agencies were no longer feasible and, in any event, they would have been fruitless. For this reason army released some panzer units to the improvised brigade. Equipped with ample authority, the brigade commander succeeded in assembling his force within a few hours. In addition to the panzer units assigned by army, he picked up some motorized artillery and other combat units on his way to the front and brought them along. Other units volunteered to join his task force.

The next day the commitment of the brigade led to a decisive victory. The battle southeast of Plavskoye was won with very heavy casualties to the enemy. Most elements of the improvised

*Ed: The basic military area in Germany, resembling somewhat the prewar U.S. Corps Area; it had the additional functions of administering conscription policies and furnishing replacements to specific units whose home stations were located in the Wehrkreis.

brigade could then be returned to their parent units. This example shows that the success of an improvisation greatly depends upon the man who is charged with its execution. Responsible commanders must therefore always keep in mind who is best suited to carry out an improvisation if they want to avoid the mistake of selecting an officer just because he happens to be available. This is of particular importance whenever an improvisation may have decisive influence on the entire situation.

The formation of more or less independent regimental combat teams often became necessary in view of the vastness of European Russia and its terrain conditions. The composition of these teams was usually adapted to local requirements which meant that organized operational units such as divisions had to be split into two or more improvised forces. This measure proved expedient in specific situations which occurred quite frequently in Russia, but was applied only on exceptional occasions because maximum striking power could be assured solely by committing an entire division as one unit. Regimental combat teams were effective whenever they were employed to turn the tide of battle at a decisive point.

A railroad combat team was improvised when the German offensive reached Orel in 1941 and two Russian armored trains were captured intact at the railroad station. One infantry regiment, some artillery, Flak, and railroad engineer elements were loaded on captured railroad trains and attached to the armored trains manned by German crews. This improvised combat team made a thrust to the south in the direction of Kursk and succeeded in surprising the Russians. Within two days the combat team reached Ponyri on the way to Kursk and took firm possession of the railroad lines after some small-scale fighting. Thus the unit contributed materially to the success of an operation which resulted in the capture of Kursk during the muddy period of 1941.

Flying columns were committed for the same purpose as combat teams. In most instances these were motorized units composed of elements from various branches and their strength and structure depended on the mission they were to receive. For instance, in 1941 the 97th Light Infantry Division left its rear elements in the assembly area and improvised a flying column with truck transportation from its service units. This column was composed of three motorized units—one infantry battalion, one artillery battery, and one antitank battalion. By its quick action and deep enveloping maneuvers it spared the follow-up division many casualties.

In another instance a flying column was committed in the Kerch Peninsula immediately after the German break-through of the Parpach Line during the Crimean Campaign. The same evening the column reached the Tartar Wall, a fortified line west of Kerch, and captured the enemy positions. The crucial point for the recapture of the peninsula was thereby once again in German hands. The 132d Infantry Division which followed in the rear could never have reached this point in time.

An interesting improvisation took place in the arctic when a mountain pack bearer battalion was transformed into a mountain infantry battalion. The mountain pack bearer battalion was composed of men in advanced age groups who hailed from the Alps. They were gradually replaced by younger men and the battalion was transformed into a combat unit. Clothing and equipment were appropriate. All members of the unit were experienced skiers but, since they needed specialized training, they were withdrawn from the line for a two-month period. Upon completion of the training this battalion was capable of difficult independent missions in the arctic wilderness.

At the outset of the campaign north of the Arctic Circle it became clear that formations of a special type were required. In the midst of operations, however, any kind of large-scale reorganization was out of the question. As a modest beginning the command decided to experiment with the formation of a swamp battalion which was to be particularly qualified for independent small-unit action in the arctic. Since there was no precedent for the formation of such a unit, it was organized by selecting young soldiers in excellent physical condition who were experienced skiers. They were issued the same clothing and equipment as mountain infantry troops. This proved so effective that all combat troops in the arctic were subsequently equipped in the same manner. A few captured trucks were to provide the battalion with motorized transportation. The men soon gained confidence and adjusted themselves to the difficult conditions prevailing in the arctic wilderness. The Finns provided instructors and gave some welcome assistance. When XXXVI Mountain Corps applied for official recognition of the unit, the request was approved and the battalion was designated a bicycle battalion. A shipment of bicycles promptly arrived; needless to say, they were absolutely useless in the arctic. Following another request the battalion was finally redesignated as an independent motorized infantry battalion. It was issued command cars and *Volkswagen* [*Ed:* the German version of the jeep] which had proved extremely useful in the snow and on the poor, narrow, rocky roads. Now the battalion was truly mobile. Later when the Finnish

units which had been attached to corps were pulled out, the new battalion carried out difficult combat and reconnaissance patrols in the arctic virgin forests and barren wastes north of the Arctic Circle.

III. Last-Ditch Improvisations

1. *The* LEUTHEN *Project*

When the Russian armies poured across Germany's eastern borders in the beginning of 1945, the Army High Command introduced a major improvisation, the LEUTHEN Project, which constituted a radical change in the Army's replacement and training policy. To the German mind Leuthen, a small town in Silesia where Frederick the Great had won a major battle with improvised forces, was the symbol of a victorious last-ditch stand. It was probably for this reason that the Army selected the term Leuthen to designate this project. The plan foresaw that all training units of the entire replacement army were to be transferred and assigned to the field forces as soon as the code word LEUTHEN was transmitted to them. In immediate proximity of the front these training units were to be subjected to a more realistic combat training than they could possibly receive in the zone of the interior. Moreover, they were to serve as security forces in rear area positions or defense lines. The original idea was therefore both sound and practical, but it should have been put into effect much sooner, when the front was still stable. What actually prompted the execution of the LEUTHEN Project at that late stage, whether it was still the original intention as officially proclaimed or rather the steadily deteriorating situation on the fighting fronts, must be left to conjecture. In reality all the LEUTHEN units were immediately committed and thrown into the thick of fighting in critical situations.

What did the LEUTHEN units look like? In every Wehrkreis there were a number of training and replacement units of various arms which were under the command of division staffs. The men who had completed their training and were ready for combat duty were in the replacement units. The training units were composed of recently inducted recruits who were to be prepared for combat by undergoing an eight-week basic training course. Upon receiving the code word LEUTHEN, the division staffs were to move out with all training units that had completed one to seven weeks of training.

One of the units alerted in this manner was the Special Administrative Division 413 which consisted of several training battalions, a regimental headquarters, an artillery battalion with an odd assortment of guns, and elements of an engineer and a signal battalion. As a tactical unit, the division was really no more than a reinforced infantry regiment commanded by an elderly general with a small staff. Needless to state, it was absolutely incapable of any combat assignment. The cadre up to the division commander consisted of personnel unfit for combat because of sickness, injury, or for lack of tactical qualifications. Most of the noncommissiond officers had suffered combat injuries of such severity that they were barely fit for garrison duty. Some of the men were entirely untrained, others had completed one half to three quarters of their basic training. Some of them were unarmed because the number of weapons provided for training units did not suffice to arm every soldier. In addition, the various formations had absolutely no organic transportation. There were no more horses than those needed for the normal garrison functions and the division had no field kitchens since the food had always been prepared in the permanent garrison kitchens. The clothing and equipment were equally defective. Quite a few soldiers, for instance, could not be issued garrison belts. In general, everything was in exactly the condition to be expected from a home station in times of stress where shortages have become the rule rather than the exception.

When the LEUTHEN division moved out it was therefore no more than an improvisation of the poorest sort. This might not have mattered so much had the division undergone a rigid training schedule far behind the lines. But even while it was on the approach march to its destination, one of its battalions was shifted from the Main River valley to Hammelburg where a small enemy armored force had broken through. The remainder of the division was immediately sent into combat and annihilated.

In summarizing, one may state that the LEUTHEN Project was doomed from the outset because it was applied in a situation for which it was entirely unsuited.

2. *Other Desperate Measures*

In view of the extremely heavy losses of manpower, the shortage of weapons, and the precarious condition of the transportation system, the situation of the German Army became so critical that the need for improvisations grew even more urgent during the last few weeks of the war. The organizational improvisations of that period were a far cry from those introduced during earlier stages. In many cases the selection and training of replacements was makeshift. Equipment of all types was totally inadequate and consisted of whatever was left over or could be picked up. Since no guns were available, the organization of new artillery units was practically impossible. Whatever new infantry units were organized during this period were of limited capability in

the field. In Bavaria, for instance, the last regular activation of a new infantry division took place in November 1944. What followed thereafter was pure improvisation, not so much because of the shortage of trained replacements, but because of the inadequate supply of weapons and equipment.

Although the organization of new divisions had become impossible, replacement units were sent to the front until the beginning of March 1945. Then even this function could no longer be accomplished. Each Wehrkreis assumed command over its replacements, organized a few emergency infantry battalions and transferred them to the nearest tactical command. Many well-trained soldiers were still available but, because of the serious shortage of infantry heavy weapons, it was no longer possible to organize entire machine gun companies. The battalions were therefore composed of a small battalion staff and four rifle companies. Each company had one machine gun platoon with two heavy machine guns and a few locally requisitioned wood-gas-burning trucks, one of which carried a cook stove. The few artillery battalions organized during this period were composed of a great variety of guns. No two batteries were alike and every section had guns of different caliber.

During that period occurred a very significant incident which demonstrated the effects of the improper utilization of administrative personnel. Several first-rate panzer battalions were in the process of rehabilitation at the Grafenwoehr troop training grounds in Bavaria. When enemy armored spearheads approached the area, a corps commander responsible for a near-by sector of the front ordered the staff of the training center to assume the tactical command of the panzer battalions and stop the enemy advance. The commander of the training center was a general well along in years who had always handled administrative assignments very competently but had never during his long career commanded a panzer unit. His staff was composed of elderly reserve officers and ordnance specialists. Their leadership spelled disaster for the panzer battalions.

The numerous organizational improvisations introduced during that period were only stop-gap measures applied in time of extreme emergency. Since most of them were adopted to overcome purely local critical situations they are of little consequence in a study of this type.

Chapter 16

Political Measures Introduced by the National Socialist Party

I. Civilian Labor Procurement

During the years preceding the outbreak of the war, civilian labor procurement had to be improvised on a large scale for the construction of fortifications. Even at the time when the West Wall was under construction, the allocation of manpower was essentially an improvisation of gigantic proportions. Receiving unusually high pay and enjoying a variety of other benefits, hundreds of thousands of men were employed by the Todt Organization and moved from one building project to the next. Not everything that was built at that time was beyond criticism, yet some of the achievement of the years 1938–39 would not have been possible without these improvisations. Toward the end of the war another improvised labor force was formed to construct additional fortifications in the west. This time it consisted of entire Hitler Youth units, of men who were in age groups subject to labor conscription but too old for military service, and of men who were no longer fit for combat.

The improvisations introduced during that period had highly political aspects. They were directed by laymen some of whom had never seen military service and whose technical knowledge was very limited. They were unaware of the major importance of matériel in military planning and were inclined to confound a temporary surge of enthusiasm—such as undoubtedly existed among the Hitler Youth Combat Units—with real fighting ability. These Party functionaries were under the erroneous impression that their own fanaticism was shared by everybody and that this alone would make up for all the shortages and deficiencies which characterize all last-minute improvisations. On the other hand, there was little opportunity for preventive measures at a time when only painstaking efforts could conceal the existing chaos. The Volkssturm might perhaps have presented such an opportunity if only it had been drawn up as a levee en masse with long-range material preparations and if entirely different slogans had been used for the mental and spiritual conditioning of the people.

II. The Volkssturm

The most extensive improvisation undertaken by the National Socialist Party was the mobilization of the Volkssturm during the

last few months of the war. The idea was to call on the last forces of resistance the German people were capable of mustering. A misunderstood and misinterpreted tradition built on memories of 1813 may also have played its part in the minds of some Party officials.

The Volkssturm included all men up to the highest age groups as long as they were capable of bearing arms and were not already serving with the armed forces. This might have provided a broad basis for successfully mobilizing whatever fighting strength had not yet been tapped if there had not been a complete lack of weapons, clothing, and equipment. Whereas clothing and equipment might conceivably be improvised, this does not hold true of arming hundreds of thousands or even millions of men. The Wehrmacht could spare nothing. At the same time it became more and more obvious that the paramilitary Party formations had hoarded and hidden weapons and ammunition, but in view of the large number of Volkssturm draftees these weapons were of little help. Then, a Party official had the idea of manufacturing simplified Volkssturm rifles with barrels he could "procure" from some factories in Saxony. This plan was also of little consequence. Thus the whole project of staging an armed levee en masse was doomed from the very outset.

Leadership and training were two of the other problems to be solved. Among the men of the Volkssturm were many veterans of World War I. Although there had been many changes in the field of tactics, these men had sufficient military background to cope with the simple missions of which the Volkssturm was capable. To provide adequate training was a more difficult matter. Men who differed widely in age, former branch of service, or type of training, as well as men without any training whatsoever, were attending military drill periods in their spare time, as a rule on Sundays. Occasionally, in towns with local garrisons, one or two instructors were provided by regular army units. That was all the assistance the Wehrmacht could give because it had no men to spare. Moreover the Volkssturm was a Party improvisation and probably deliberately kept apart from the Wehrmacht from its initial organization.

Only when actually committed in combat was the Volkssturm to be placed under the tactical control of the Wehrmacht and fight in conjunction with the regular field forces. There was no reason for great expectations. The call to arms for an extended tour of duty was to be locally restricted. The men were to be called upon only if the enemy threatened their home county and even then they were to be used exclusively for local defense. Even that was almost too much to expect. When, toward the end of the war, entire Volkssturm battalions were committed far away from their homes on the Eastern Front, this emergency measure was contrary to the spirit and original mission of the Volkssturm and could only lead to failure.

Guard duty and local security assignments were practically the only missions for which the Volkssturm was really qualified. Its composition, its limited training, and the fact that no more than rifles and in some cases only pistols and hand grenades could be issued as weapons, precluded its commitment in real combat operations. Since it was incapable of withstanding critical situations, the Volkssturm could only become a liability and threat to the troops it was to join in battle. Its proper mission was to construct and guard road blocks. Important psychological considerations spoke against restricting Volkssturm units to purely local commitment. Surely the primary interest of the men resided in inflicting a minimum of war damage to their home towns where their families lived. Thus, it was safe to assume that the Volkssturm men would prefer to avoid any last-ditch stand in the immediate vicinity of their home towns. The tactical commanders therefore took the precaution to suggest that road blocks and fortifications should be erected at a sufficient distance from any community in order to spare it the effects of combat action. Later orders from higher headquarters specified that no Volkssturm units should be committed any closer than thirty miles from their immediate home towns. This, however, meant a complete reversal of the basic principle of restricting the Volkssturm men to the defense of their immediate home territories.

In East Prussia the Volkssturm did a better job than anywhere else. It was there that the idea of the Volkssturm levy had originated since East Prussia was the first German province directly threatened by the enemy. There the organization and training of the Volkssturm made the greatest progress.

East Prussia alone raised thirty-two Volkssturm battalions. All of these remained in that province even when, in November 1944, the civilian population from the northern districts had to be evacuated. After that, most of the Volkssturm units were used to prepare reserve battle positions in the rear area for a possible withdrawal of the combat troops who in turn provided instructors for the Volkssturm battalions. Months of continuous instruction raised their standard of training to such a degree that a number of Volkssturm battalions were able to carry out limited combat missions. A few of these so-called special employment units were equipped with a sufficient number of modern weapons such as the most recent 75-mm. antitank guns, the latest model machine guns, and some older-type small-caliber antiaircraft

guns. Some of them even had adequate motor transportation. The units were composed of a small percentage of World War I veterans with the rest about equally divided between 16- and 17-year old youngsters and elderly men from 60 to 75. Some of the battalions were under the command of former staff officers who had distinguished themselves in World War I but were now afflicted with various physical disabilities. The majority of the battalions were short of weapons, equipment, and training, and their employment in actual combat operations was out of the question. It was planned to integrate them into the field forces only in case of a general withdrawal of the lines.

From the outset this was recognized as a serious handicap which, however, could not be corrected since the Army had no jurisdiction over these formations. Time and again the Army requested that the battalions be immediately disbanded and all Volkssturm men fit for combat duty be transferred to the field forces. Yet every one of these requests was flatly rejected by the Party. Thus, during the latter part of January 1945 when the front began to give way, most of the Volkssturm battalions employed in East Prussia were of no use to the Army. Wherever they did not disintegrate altogether, they suffered heavy casualties. But contrary to standing orders, a few battalions had been moved up into combat alongside seasoned field units during the preceding weeks and these battalions gave a good account of themselves. Special mention is due to Volkssturm Battalion Labiau which fought as part of a division improvised from service troops. Three times the battalion was dislodged, but in every instance it succeeded in recapturing its original position by launching counterattacks. In this bitter struggle the battalion commander and most of his troops remained on the field of battle.

At another time the Volkssturm performed less well. Showing much zeal in military matters, Party headquarters in East Prussia produced its own 75-mm. antitank guns with iron-wheeled gun mounts and conducted short training courses to familiarize members of the Volkssturm organization with the weapon. By the end of January 1945 the situation near Tapiau east of Koenigsberg was obscure. (Map 4) There, the personnel of an Army ordnance school was engaged in bitter fighting against advancing enemy armor. The commanding officer of the ordnance school had been killed and Tapiau had changed hands several times but was held by German troops at that moment. Rumor had it that enemy tanks had broken through and were advancing on Koenigsberg. Thereupon Party headquarters improvised an antitank gun battalion with twenty new 75-mm. antitank guns from its training school and dispatched it to the area east of Koenigsberg to take up positions for the protection of that city. At sundown strong armored formations suddenly came into sight opposite the antitank gun position. This impressive spectacle caused such a state of terror among the inexperienced gun crews that they left their guns and ran for cover in all directions. Their leader, a young first lieutenant, tried in vain to stop them. Assisted by a few instructors he succeeded in getting some of the guns ready for action and was just about to open fire when he realized to his surprise that he was facing German tanks. It was the 5th Panzer Division which, after heavy tank fighting in the area east of Tapiau, had succeeded in breaking through the enemy lines and was now assembling in this area in compliance with its orders. For once the failure of an improvisation was of distinct advantage.

III. Paramilitary Units During the Last Stage of the War

Toward the very end of the war the Party organized certain tactical units which were to be committed in the field. Political considerations predominated and outweighed all others. For some time past, elements of the Reich Labor Service had served as antiaircraft units. Since there were absolutely no other forces available, elements of labor service battalions were employed to defend the road blocks they had previously constructed.

Hitler Youth Combat Units, organized during the last weeks of the war, were assigned to the field forces on various sectors of the front. Their special task was the pursuit and destruction of enemy tanks with the help of bazookas and *Panzerfausts*. Just before the end of the war, Party Secretary Bormann attempted to organize an Adolf Hitler Volunteer Corps.

The accomplishments of these various paramilitary units are unknown to the authors.

PART SIX

CONCLUSIONS

Chapter 17

Are Improvisations Inevitable?

A considerable number of the improvisations described in the preceding chapters could undoubtedly have been avoided by normal advance planning. Other improvisations could have been minimized by preparatory measures of a general nature which could have been further developed if and when the need arose. A third category of improvisations could not have been even generally anticipated because they were caused by such abnormal conditions or extraordinary circumstances.

I. Avoidable Improvisations

In an attempt to avoid improvisations one must search for and examine all the problems that may possibly confront an armed force in future wars. First of all it is necessary to determine the probable theaters of war. Nowadays any conflict is likely to assume the proportions of a global war if it transcends the limits of a purely local police action. Prior to World War II the Germans did not think far enough ahead. When, for instance, the Armed Forces Academy needed maps of Finland, it was discovered that the available supply of such maps at the Map Service of the Reich War Ministry was inadequate.

The next step is the acquisition of a thorough knowledge of the potential theaters of war, a knowledge not limited to their broad geographic or military-geographic features, but which includes above all their climatic conditions. In every geographic region the native mode of life is determined by the climatic conditions. For obvious reasons this influence is especially pronounced in the many fields of military activity. Strategy and tactics, organization, weapons, munitions, equipment, clothing, food, training, replacements, billeting, and many other factors are strongly affected.

Moreover, a great deal may be learned in advance about one's potential enemy. Differences between his armed forces and one's own are usually not fortuitous but rather reflect a discrepancy

in the military policy of the two nations. The observation of any striking deviations from standard procedures should therefore give rise to speculation about their inherent causes. This will make it possible to decide upon the appropriate measures which must be introduced in every military sphere in case of an armed conflict with that country. Friendly nations which are subject to the same climatic conditions as those of the potential enemy may serve as a source of useful information in peacetime.

Senior commanders in the armed forces and military specialists in all important fields must acquire firsthand knowledge of the climate and terrain as well as the social, economic, political, and military conditions in any potential theater of war or at least in those neutral or friendly countries which show similar characteristics. On the basis of their own observations, these men must determine what is essential for the conduct of military operations. Firsthand personal impressions are indispensable; they may be supplemented by the study of pertinent books and documents and by consultation with private citizens who are likely to have a sound judgment of foreign countries.

Military history is another source of valuable information. It is never too late to determine the reasons for the success or the failure of past operations. Many of the decisive factors have retained their validity throughout the years and their effect on military operations in our time would be very much the same as in the past.

In view of the foregoing, the Germans were in a good position to learn the general as well as the climatic conditions of European Russia and the far north. If they actually acquired this knowledge, the Germans certainly failed to draw the proper conclusions for their military policy. Instead, they were forced to use improvisations because of the lack of advance planning and preparations. If they did not get that information in the first place, they were obviously guilty of neglect. For instance, the Finns might have told them that ordinary flat-country divisions are not suitable for fighting in the impenetrable forests, the rocky labyrinths, and the swamps and marshes of the arctic. Perhaps German planners were still too deeply entrenched in Central European military traditions. Also, the military were not sufficiently familiar with foreign lands and particularly with countries whose climatic conditions differed from the German. As a result they were lacking in proper personal understanding of what was to be expected. They probably took matters too lightly at the outset. In the field of tactics and logistics in European Russia and the arctic, better preparations might have been made before military operations began. Many improvisations pertaining to tactics and logistics could have been foreseen, in particular those which developed into permanent institutions and were eventually incorporated in German standing operating procedures.

Thus if improvisations are to be avoided, one of the essential prerequisites is the logical application of any knowledge possessed or acquired about a potential theater of war. It may happen that a country becomes involved in a war by surprise; in that event the top-level military leadership must act immediately and take appropriate steps to master the situation. It is wrong to wait until the field forces began to help themselves by introducing improvisations which in some cases may be the wrong ones and difficult to eradicate. After weighing the requirements against the available emergency resources, all spheres of the war effort must immediately be adjusted to the new situation by concerted action. This will prevent many adverse psychological effects which may otherwise easily disrupt the confident relationship between the top-level command and the field forces.

II. Unavoidable Improvisations and their Minimization

A different category of improvisations will be unavoidable whenever an unexpected or unpredictable situation produces the need for extraordinary tactical or logistical measures. A number of the improvisations mentioned in the preceding chapters could not have been avoided, even if adequate preparations had been made. The need arose so suddenly or was so localized that preparations carried out elsewhere could not be used in time to remedy the situation. Logistic preparations, for example, will prove effective only if mobile transportation is readily available in case of a sudden break-down in the movement of supplies. For this purpose higher headquarters may resort to airlift, truck, railroad, or inland water transportation. Such preparations must be made well in advance in order to assure immediate availability of stand-by transportation of the above-mentioned types in sufficient numbers and within reasonable distance.

In situations which require immediate emergency measures there is at first no choice but to improvise extemporaneously. If such improvisations are enforced for some time, it will be possible to correct their deficiencies gradually and to introduce systematic improvements.

Improvisations in the fields of weapons, ammunition, equipment, clothing, or rations can rarely be avoided since it is impossible to anticipate all requirements. In some instances stop-gap measures may well consist of emergency purchases of consumer

goods, but a general solution can be found only if the rigid system of standards and specifications adhered to in military procurement can be modified and adjusted to the flexible methods applied by private industry. It would then become possible to provide suitable equipment for specific needs in time, thereby eliminating many improvisations. It goes without saying that one cannot possibly mass produce arctic equipment in peacetime in expectation of an armed conflict in the arctic at some time in the future.

III. Improvisations in Extreme Emergency

In times of extreme emergency, improvisations must be approached from a different point of view and applied with other standards than those used during other periods of the war. In such situations preparatory measures hardly enter the picture because then it is a matter of living from hand to mouth while being catapulted from one crisis to the next. The pressure of time assumes tremendous proportions. Obviously no country at war will ever expect to be faced by a situation such as that with which the Germans had to cope during the closing days of the last war. Much less will any country attempt to prepare for such an emergency.

Chapter 18

The Relative Value of Improvisations

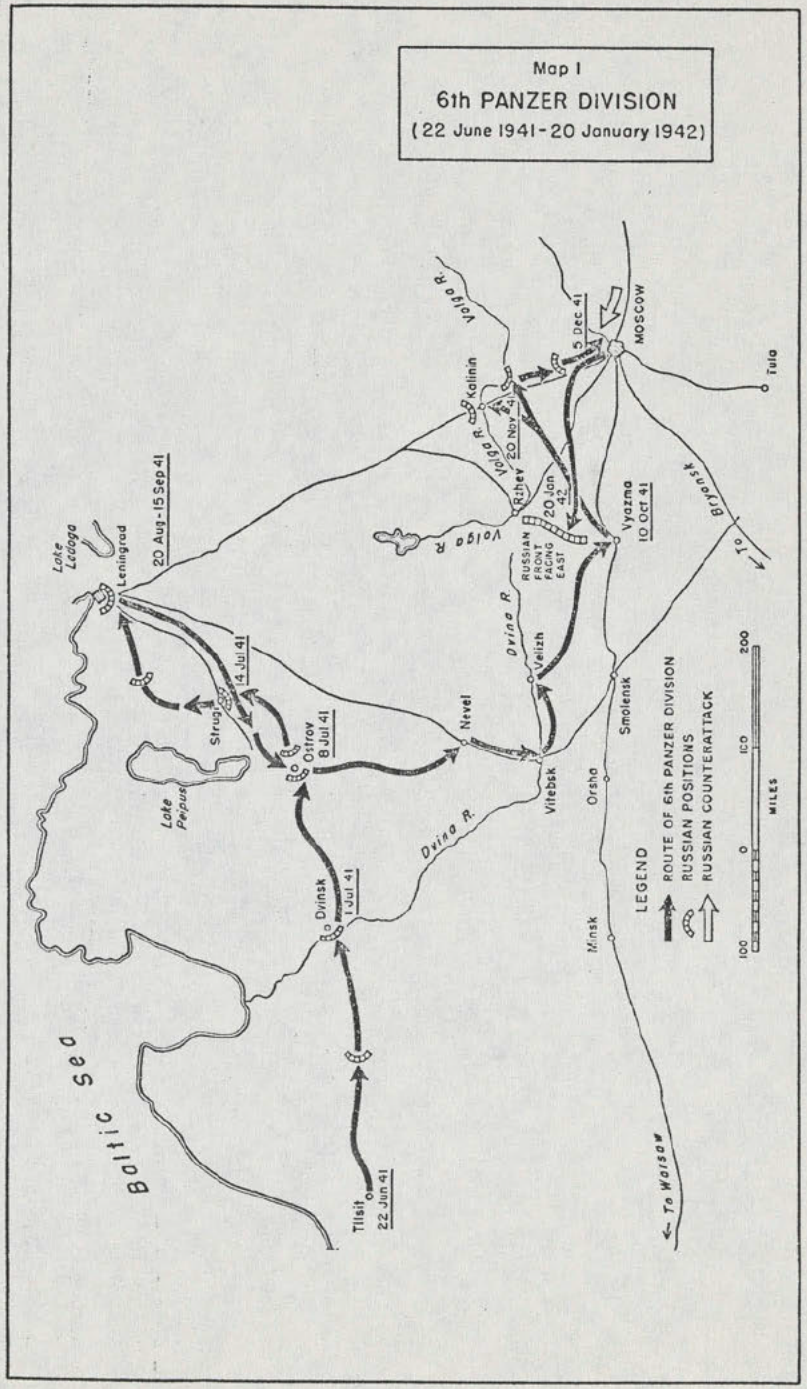
The preceding chapters give a fairly detailed account of German military improvisations and indicate their relative value in a variety of situations. By presenting numerous examples, an attempt has been made to demonstrate why certain improvisations served their purpose whereas others failed. This presentation should enable the reader to draw a number of conclusions that have general validity. The most obvious conclusion is that, because of their always-present inherent defects, improvisations should be avoided altogether whenever possible. On the other hand, some of the improvisations presented in this study were absolutely essential and proved effective. For instance, it would have been absolutely impossible to conduct operations in the arctic or to control the supply situation in the Russian theater, had not improvisations been introduced. That many of them were eventually accepted as standing operating procedures simply indicates that they should never have been improvisations. Their success was based on the fact that they were initiated and carried out by experts and that the essential prerequisites for putting them into effect existed in these specific cases.

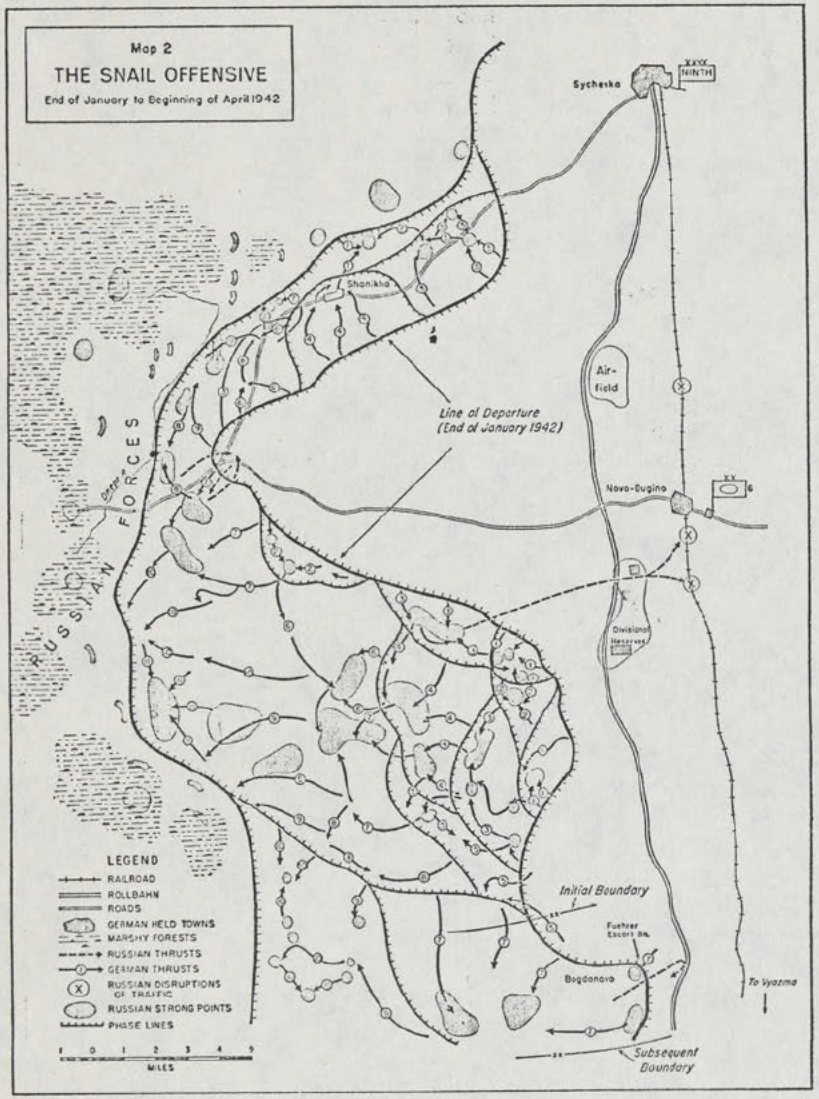
The failure of any improvisation could be attributed either to the lack of proper planning or to the fact that it had been introduced at a time when the necessary means to implement it were no longer available. In many instances its failure could be traced to the laymen who were charged with the responsibility for its execution. All these factors predominated during the last stage of the war when a great number of improvisations failed to meet expectations.

In general, however, improvisations proved effective provided the right men were selected for their implementation and provided they were enforced with the best available matériel and the firm determination to achieve the intended military purpose.

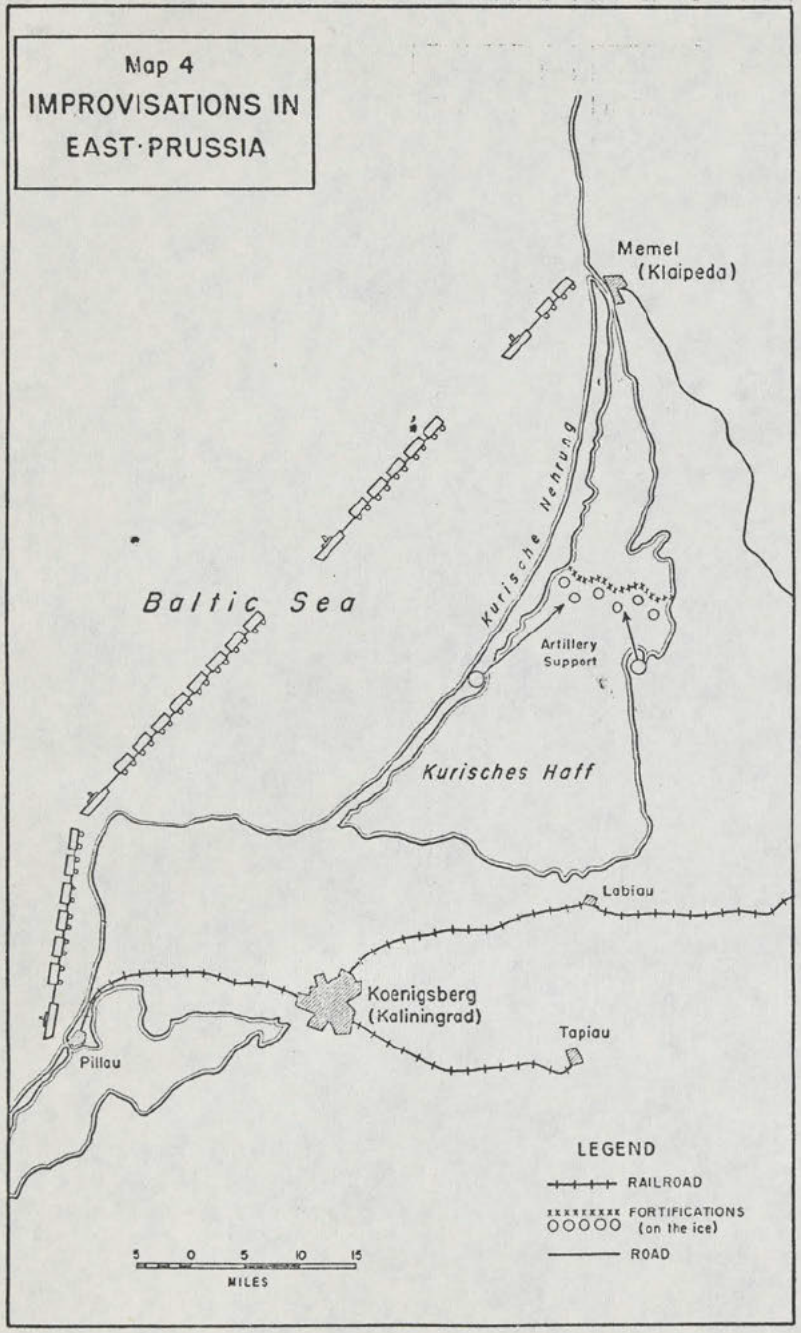
An observer who looks at the Russian campaign in retrospect will come to the conclusion that the multitude of improvisations which were employed far exceeded what Moltke once designated as a "system of expedients" in the tactical sense. Actually, the Germans were forced to introduce the first improvisations as soon as they crossed the eastern border. The farther they advanced into Russia the more expedients they had to devise. The number rose by leaps and bounds when operations began to be hampered first by mud and swamps and later by snow and ice. During the

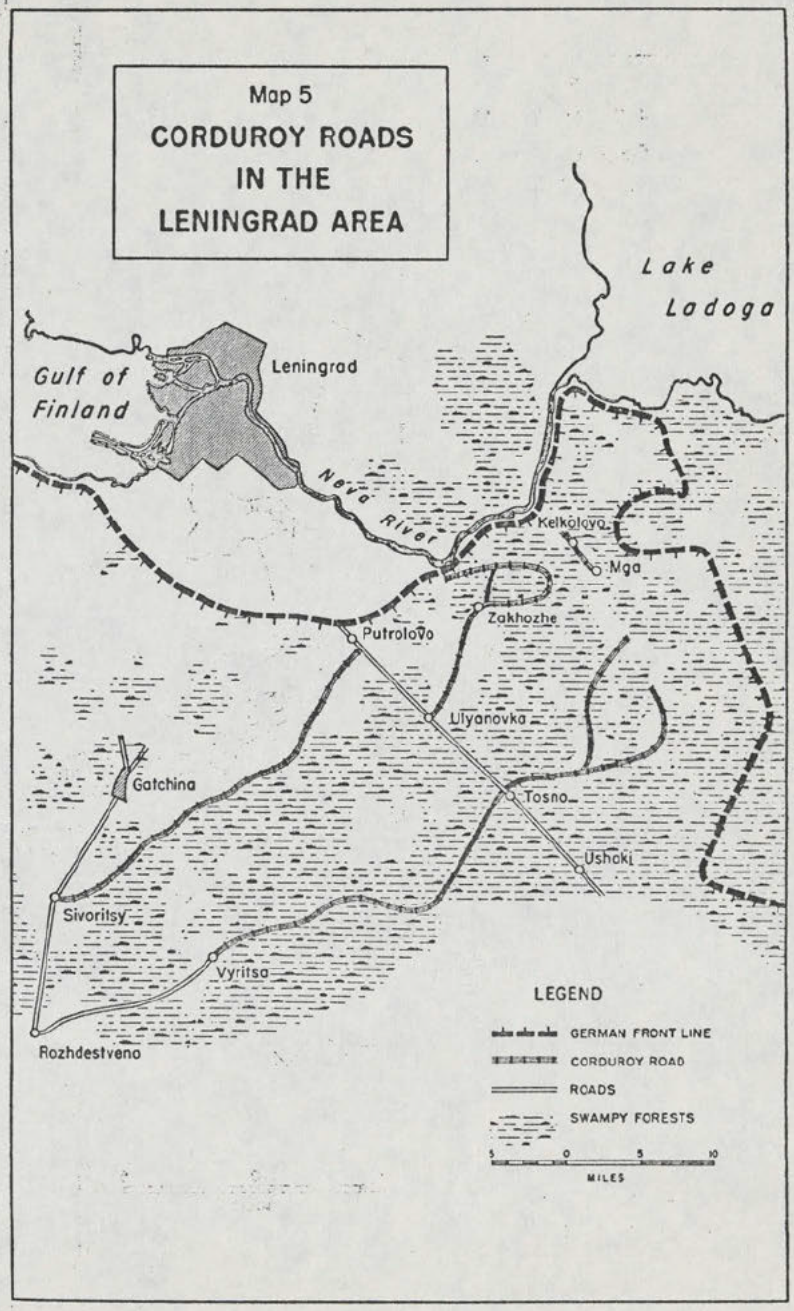
last stage of the war, improvisations permeated every compartment of the war effort both within Germany and at the front. At the culminating point expedients assumed the proportion of an avalanche, the momentum of which eventually buried the entire military machine. Improvisations could never be expected to compensate for the lack of vision and the fundamental blunders of German leadership. It is no exaggeration to state that the entire Russian campaign will go down in history as one gigantic improvisation.




Map 2
THE SNAIL OFFENSIVE
End of January to Beginning of April 1942
Sychevka
XXXX
NINTH
Shanikha
Air-field
Line of Departure
(End of January 1942)
Nova-Bugino
XX
6
Dnepr
RUSSIAN FORCES
Divisional Reserves
Initial Boundary
Fuehrer Escort Bn.
Bogdanovo
To Vyazma
Subsequent Boundary
LEGEND
RAILROAD
ROLLBAHN
ROADS
GERMAN HELD TOWNS
MARSHY FORESTS
RUSSIAN THRUSTS
GERMAN THRUSTS
RUSSIAN DISRUPTIONS OF TRAFFIC
RUSSIAN STRONG POINTS
PHASE LINES
MILES

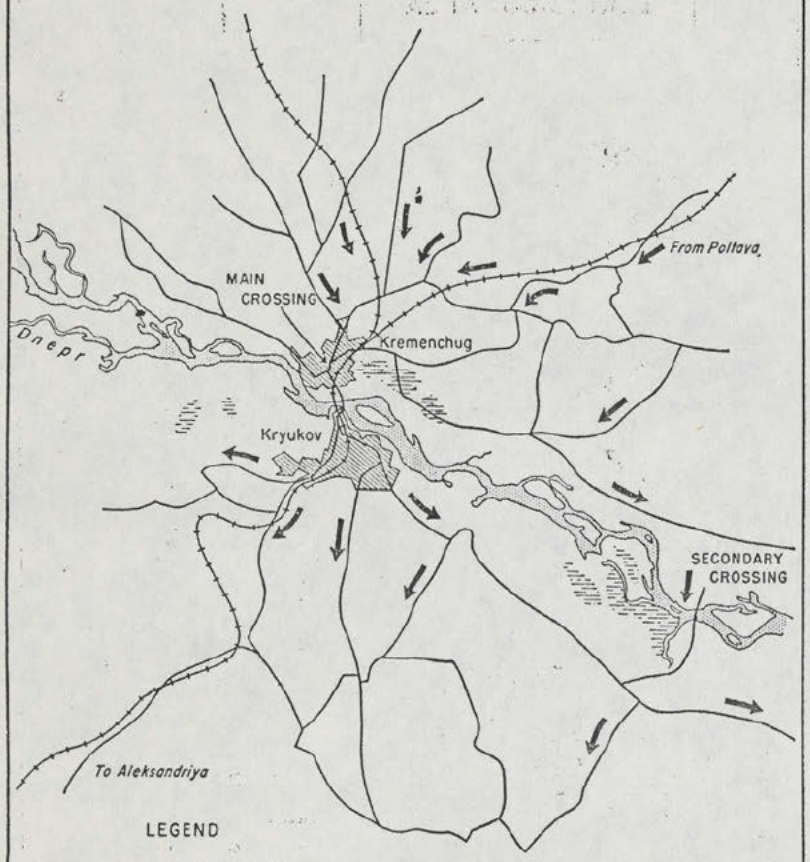

Map 3
OPERATION SEYDLITZ
(Situation on 3 July 1942,
the Second Day of the Attack)
Poselok Nelidovo
Olenino
Rzhev
Rollbahn
Lucheso R.
CAVALRY BRIGADE MODEL
Osha R.
Belyi
RUSSIAN FORCES
Sychevka
To Moscow
Vyazma
To Smolensk
Desna R.
German Line of Departure
LEGEND
RAILROAD
ROAD
AUTOBAHN
SWAMPY FORESTS
GERMAN
RUSSIAN
THRUSTS
RUSSIAN
GERMAN
LINES
MILES


Map 4
IMPROVISATIONS IN
EAST·PRUSSIA
Memel
(Klaipeda)
Kurische Nehrung
Baltic Sea
Artillery
Support
Kurisches Haff
Labiau
Koenigsberg
(Kaliningrad)
Tapiau
Pillau
LEGEND
RAILROAD
FORTIFICATIONS
(on the ice)
ROAD
5 0 5 10 15
MILES


Map 5
CORDUROY ROADS
IN THE
LENINGRAD AREA
Lake
Ladoga
Gulf of
Finland
Leningrad
Neva River
Kelkolovo
Mga
Zakhozhe
Putrolovo
Ulyanovka
Gatchina
Tosno
Ushaki
Sivoritsy
Vyritsa
Rozhdestveno
LEGEND
GERMAN FRONT LINE
CORDUROY ROAD
ROADS
SWAMPY FORESTS
5 0 5 10
MILES

Map 6

THE WITHDRAWAL ACROSS THE DNEPR



LEGEND

- DIRECTION OF THE WITHDRAWAL
- SWAMP
- SWAMPY FOREST
- ROAD
- RAILROAD

5 0 5

MILES

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