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HEADQUARTERS  
EUROPEAN COMMAND  
OFFICE OF THE CHIEF HISTORIAN

MS #D 253

MANUSCRIPT DATA SHEET

- I. Author: No. 313
- II. Title of the report: Antitank Defense in the East
- III. Ordered on: 1 April 1947

IV. Sources:

A. Advisers: --

B. Documents (American, German Documents, Diaries, etc.)

Diary notes.

For sketch 1: Europe 1: 2,000,000, sheet B 3, West Central  
Russia.

For sketches 2 to 4: German army map Eastern Europe

1 : 300,000 enlarged to 1 : 100,000; sheets  
Y 53, Y 54, and Z 54.

V. Abbreviations:

T34 - Type of Russian tank

Pak - Antitank gun

Flak - Antiaircraft gun

l.F.H. 18 - field howitzer model 18

s.F.H. 18 - medium howitzer model 18

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HISTORICAL DIVISION SEAL

Author No. 313

Garmisch, May 22, 1947.

Main Topic: Special topics

Present report: Antitank Defense

SUMMARY

- A. Introduction: Antitank weapons at the beginning of the Russian campaign.
- B. Operational situation of Panzer Army Group 2 at the beginning of October 1941.
- C. The crisis in German Tank Warfare in October 1941.

Operations of the German 4th Panzer Division in the area of Orel, Woin, and Mzensk from 3 October 1941 to 10 October 1941.

1. 5 October 1941. The first tank battle at Woin.

Surprise appearance of the new Russian tank T 34.

Destruction of 8 German Panzers by gunfire from the  
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T 34's at a range from 2,000 to 3,000 meters. A

Russian tank counterattack repulsed by artillery and antiaircraft fire. Serious losses on both sides.

2. 6 October 1941. The second tank battle at Woin.

Considerable superiority of the T 34's fire power again inflicts serious damage to the German tanks.

3. 7 October 1941. German attack on Mzensk.

The German infantry attack. Artillery support. Feint maneuvers against enemy tanks. Surprise attack by German Panzers on Mzensk executed by outflanking the enemy tanks.

4. Evening of 7 October 1941 - 10 October 1941

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D. Conclusions and experience gained from these operations, particularly with reference to antitank defense.

1. The armor-piercing qualities of the German Panzer weapons and self-propelled assault guns.

New weapons developed by the Germans. Strong and weak features of the T 34's.

2. Details of the antitank and antiaircraft guns.

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3. Artillery.

The effectiveness of the German field howitzer as an antitank weapon.

4. Close combat antitank weapons.

The development of new weapons.

E. Comments.

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Antitank Defense in the East.\*

Report based on combat experience in a Panzer Division.

F o r e w o r d

The author of this report had no written data at his disposal. Consequently, he cannot vouch for the ~~complete~~ accuracy of the figures given.

I n t r o d u c t i o n

Antitank defense played an important, frequently even a decisive role in practically all operations in the East, both on the German and on the Russian side. Every type of equipment which could be employed effectively in one way or another was pressed into service for this purpose.

Equipment as well as tactics underwent considerable changes during the fighting in the East. It is beyond the scope of this report to deal exhaustively with all the questions pertaining to this topic. Nevertheless, an attempt will be made to explain a number of particularly characteristic problems on the basis of personal combat experience, to draw certain conclusions, and to point out the lessons learned.

The German Panzers and assault guns were the most effective weapons in antitank defense, a fact proved by the number of hits registered. Next were the self-propelled Paks [AT guns]. Only in the third place came Paks and Flaks on conventionally drawn mounts. Artillery and antitank mines were employed in antitank defense with great success from the beginning.

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<sup>\*</sup>Editor's note: American designations for all German artillery correspond to terms used in the official "Handbook on German Military Forces" TM-E 30-451, WD, 15 March 1945.



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Close combat antitank weapons, particularly the Panzerfaust [recoilless antitank grenade and launcher - both expendable], became more and more important during the course of the campaign.

The role of the air force in antitank defense was mainly that of the most important reconnaissance agency. Only in rare cases were tanks attacked by specialists with aircraft weapons, bombs, guns, and rockets. This measure was very effective whenever it was applied.

At the beginning of the Russian campaign the German army was equipped with technically inadequate antitank weapons. The heavy companies of infantry regiments had two 50-mm. Paks and from four to six 37-mm. Paks. In the antitank battalions one company was equipped with 50-mm. Paks, the others with 37-mm. Paks. The 37-mm. Pak was known to be obsolescent even before the beginning of the war. The 50-mm. Pak, although fully developed, could not be introduced everywhere on short notice because German industry was unable to produce in a few weeks the approximately 4,000 guns and proportionate quantities of ammunition required for the change-over.

The 37-mm. Pak, employed against the light, thinly-armored Russian tank at first encountered in the East, was effective at ranges/<sup>of</sup> from 300 to 500 meters when used against the front, at ranges/<sup>of</sup> from 600 to 800 meters when used against the side or back of/<sup>a</sup> tank at a 60-degree angle of impact (American 30 degrees).

The 50-mm. Pak could pierce the front of the older Russian tank at ranges/<sup>of</sup> from 500 to 800 meters and the sides or the back at ranges of from 900 to 1,000 meters.

The situation was identical as far as the armament of the German Panzer III's was concerned, which consisted of the same 37-mm. and 50-mm. guns, respectively.

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At the beginning of the Russian campaign the Panzer IV's were equipped with a short-barreled, 24-caliber, 75-mm. gun. They were able

to pierce the front of the older Russian tank at ranges/ <sup>of</sup> from 600 to 1,000 meters.

In spite of this technical weakness of <sup>their</sup> weapons, the German Panzers were by far superior to the Russian tanks during the first phase of the Russian campaign -- approximately until October 1941 -- and knocked out many enemy tanks with negligible losses to themselves.

It was not until the appearance of the Russian tank T 34 in October 1941 that a complete change took place in tank warfare and in antitank defense. The following pages contain a description of the <sup>pertinent</sup> experiences gained ~~in this connection~~ in one Panzer Division in the central sector.

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The Crisis in German Tank Warfare in October 1941.

Operational Situation of Panzer Group 2 at the beginning of October 1941.

See sketch 1.

After the main battles of the large encirclement east of Kiev had come to a close, Panzer Group 2, subsequently the 2nd Panzer Army, had been <sup>had been</sup> ~~was~~ relieved by the 6th and 2nd ~~XXXXX~~ Army, respectively. At the beginning of October 1941, Panzer Group 2 mounted a new attack to the northeast with 3 Panzer corps.

The forces were disposed as follows:

On the right the XLVIII Panzer Corps with the objective Kursk; in the center the XXIV Panzer Corps with the 3rd and 4th Panzer Divisions advancing from the area around Gluchow through Sewsk, Dimitrowsk, on Orel and Tula, on the left the XLVII Panzer Corps moving toward Bryansk to mop up the encirclement there.

While the XLVIII Panzer Corps was making only slow progress toward Kursk -- the town was not taken until 2 November 1941 -- the XXIV Panzer Corps' attack, with the 4th Panzer Division in the lead, <sup>was</sup>

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Operations of the 4th Panzer Division at Orel, Wein, and  
Mzensk from 2 to 10 October 1941.

5 October 1941 (see sketch 2, a and b).

On 3 October the town of Orel fell into German hands after stubborn resistance as the result of a surprise Panzer attack executed by the 4th Panzer Division.

The momentum of the successful operations of the past weeks carried the division into a new attack northeast two days later.

Early in the morning of 5 October, during good weather, the division broke through the Russian rear guard positions on both sides of the Orel-Mzensk road after a brief artillery preparation. The division rapidly thrust forward. Its Panzers formed the right, and at the same time main, Kampfgruppe which rapidly advanced on the main highway and along its two sides. The armored infantry, forming the left Kampfgruppe\* attacked along the railroad line and in the Oka valley.

A few kilometers east of Orel a completely new type of Russian tank suddenly appeared in front of the German Panzers. These were the new T 34's with their characteristically sharp slanting front plate, a long gun barrel, wide tracks, and a powerful aircraft engine notable for its low, roaring sound.

At first the T 34's did not engage the German Panzers, which had immediately opened fire, but withdrew to the northeast.

Towards noon the German Panzers crossed the deep-cut Oka valley, which was impassable for Panzers, by way of the undefended highway bridge north of Otrada. They were covered by the fire of the artillery which was moving into position west of the Oka. The combat reconnaissance forces of the motorized reconnaissance battalion had reported enemy tanks east of the Oka.

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The division commander was driving in the second wave of Panzers with the Panzer commander and the artillery commander. Pursuant to his order, the artillery had been disposed in accordance with the artillery commander's suggestion as follows:

The light artillery battalion, reinforced by one battery of 105-mm. medium guns (model 18), was attached to the Panzers for mutual support. The battalion moved its most advanced battery into a firing position just east of the Oka river with a wide field of fire against tanks. One gun was posted as antitank defense 400 meters further forward, just off the road.

The 105-mm. medium gun battery placed its four guns west of the Oka on both sides of the road, emplaced in depth in such a manner that they were able to bring the road under direct fire for 3,000 meters. The above-mentioned field howitzer battalion, less one battery, was set up in a concealed position west of the Oka. One additional field and one medium howitzer battalion were also mounted there in firing position to guard the crossing over the Oka and to support the further attack of the division. Some of their observers were riding in observation-post Panzers along with the Panzers, the others were observing from the hills west of the Oka.

The German Panzers were advancing deployed in two waves on the eastern, slowly rising, completely open slope when they suddenly received strong fire from a group of about 15 to 20 T 34's lined up in a broad front on the hill. The Russian tanks opened fire at a range of from 2,500 to 3,000 meters and knocked out several German Panzers within a short period of time. This was a bad surprise, especially since the strong fire of the German Panzers did not show any effect on the enemy even though numerous hits were observed.

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Impressed by this great fire superiority, the German Panzer commander immediately moved his Panzers back into sight defilade. He then sent out combat patrols on both flanks. Contrary to the advice of the artillery commander, the Panzer commander ordered the two towed 88-mm, Flaks attached to him to move into open fire position in <sup>full</sup> view of the enemy Panzers, and to engage them in combat. As was to be expected, the two 88-mm, Flaks were shot to pieces by high-explosive shells from the enemy tanks at a range of about 2,500 meters, even before they themselves could open fire.

In the meantime, the Panzer commander and the artillery commander advanced on foot to reconnoiter the limits of the enemy tank formation, and to locate covered approaches for a surprise Panzer attack at close range against the flanks of the enemy tanks. The terrain was not suited for such a purpose, for which reason, and in view of the unfavorable tactical situation, the Panzer commander decided to break off the engagement. He intended to withdraw behind the Oka in order to wait for the left Kampfgruppe, which was lagging behind, and then to resume the attack under more favorable conditions.

As part of this withdrawal the artillery commander <sup>was</sup> immediately ~~was~~ to move his advanced battery back across the Oka. However, <sup>since</sup> he was anxious to learn the effectiveness of his armor-piercing shells on the new type of tank, he suggested to leave the battery where it was and not to withdraw our Panzers through the dangerous defile of the bridge, but instead to fall back with the Panzers in southeasterly direction on the eastern bank of the Oka. He was hoping that the expected Russian tank ~~attack~~ attack would move past the guns of the artillery, which were ready to fire. His suggestion was accepted and the appropriate orders were given immediately.

The two commanders had a double surprise while returning to their

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The two commanders had a double surprise while returning to their Panzers. They discovered that they were moving about in the middle of an excellently camouflaged Russian infantry position. The fields

were covered with many small haystacks. Beneath each one of them was a round standing trench occupied by a Russian infantry soldier. The forces occupying them, about one company, remained completely passive. They surrendered quickly and without offering any resistance to a handful of men called in from the Panzer crews. There was even an artillery observer with a wire-connected telephone among the prisoners.

During this interlude, the two commanders noticed a group of about 10 or 15 T 34's driving rapidly southwest on the road leading from the Dumtschina railroad station out of the woods. At the same time the enemy tank battalion facing the front slowly started to move forward. The Russian tank attack was getting under way.

The German Panzers and the artillery received their orders <sup>still</sup> in good time. The advanced field gun was turned around to face north just as the first enemy tanks made a flanking attack from the north. They rapidly approached the highway at a right angle, reaching it almost exactly on a line with that gun. There were deep ditches on either side of the highway. The somewhat confused German gunner managed to fire the first shot only at the moment when the enemy tank stopped at the ditch and aimed his gun at the field piece which was standing in the open and apparently had been recognized only at that moment. Two shots were fired simultaneously, one by the tank and one by the field gun. At a distance of 10 meters the shots were deadly for both.

In the meantime, the other T 34's had crossed the highway and attacked the German Panzers which were falling back to the southeast as they had been ordered. The enemy tanks passed about 50 to 200 meters in front of the barrels of a battery which was in <sup>position</sup> behind a meter-high bank. The battery knocked out two T 34's.

[4]

At the same time, the 105-mm. <sup>medium</sup> guns east of the Oka opened fire on these tanks and on those approaching from the east. By then the latter were under fire from the entire artillery posted in defilade and were

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At the same time, the 105-mm. <sup>medium</sup> guns east of the Oka opened fire on these tanks and on those approaching from the east. By then the latter were under fire from the entire artillery posted in defilade, and were forced to slow down. Thus the well-directed, concentric tank attack <sup>medium</sup> was smashed. The 105-mm. <sup>medium</sup> guns knocked out two tanks.

The Russian flanking group executed an about face under heavy fire from the German Panzers and passed, once more, at a distance of about 20 meters in front of the battery which was firing away. It knocked out two more T 34's.

Members of the tank crews which had been taken prisoner stated that they had failed to recognize the battery. Moreover, there was no possibility to pass on information about such targets discovered unexpectedly during the course of the battle, as only the company commanders of the Russian armored forces were equipped with radios.

Several of the T 34's driving in the second wave of the flanking group had broken through behind the firing battery. They did not attack the guns, but drove into the combat vehicles and tractors standing at the bottom of the valley, doing, however, but little damage. The T 34's were driven off by the field howitzers which swung around under fire.

The following episode is one more example of the clumsiness of the new T 34's in close combat. When a T 34 got stuck while ramming a large prime mover, two German officers jumped on top of the tank, smashed the barrel of the machine gun with a pickaxe, and threw a blanket over the turret and the direct-vision slots. One of the officers <sup>then</sup> opened the hatchway at the rear of the deck (above transmission compartment) [Grüting]\* and blocked the gears with the pickaxe. The tank was blinded and immobilized, surrounded by German officers and men, but kept on blazing away with its gun without hitting very much. A gasoline can was emptied over the blanket and the tank set on fire by a hand grenade. Shortly thereafter the turret hatch burst open and the crew came out and was captured. Only one officer escaped in a desperate headlong leap through the air.

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The following episode is one more example of the clumsiness of the new T 34's in close combat. When a T 34 got stuck while ramming a large prime mover, two German officers jumped on top of the tank, smashed the barrel of the machine gun with a pickaxe, and threw a blanket over the turret and the direct-vision slots. One of the officers <sup>then</sup> opened the hatchway at the rear of the deck (above transmission compartment) [Grätting]\* and blocked the gears with the pickaxe. The tank was blinded and immobilized, surrounded by German officers and men, but kept on blazing away with its gun without hitting very much. A gasoline can was emptied over the blanket and the tank set on fire by a hand grenade. Shortly thereafter the turret hatch burst open and the crew came out and was captured. Only one officer escaped in a desperate headlong leap through the air.

\*Editor's note: The German term "Grätting" cannot be found in any dictionary. The context seems to indicate that the above translation correctly conveys the meaning of the word.

[4]

To be sure, the enemy tank attack east of the Oka had been repulsed. The Russians, however, had checked the German advance and had succeeded in changing into definite doubt our previous confidence in our absolute superiority over the Russian tanks.

The Russian losses amounted to seven T 34's. Of these, 2 had been knocked out by 105-mm. <sup>medium</sup> guns at a range of about 3,000 meters, and the other 5 by armor-piercing shells from the ~~light~~ field howitzer model 18 at ranges <sup>of</sup> from 10 to 200 meters.

The German losses, all of them caused by the fire of the T 34's, were 8 Panzer III's and IV's, one ~~light~~ field howitzer model 18, and two 88-mm Flaks.

A result worth-while thinking about. Not even at close range had the German Panzers managed to knock out a T 34.

Unfortunately, the commander of the German Panzer division had left the main Kampfgruppe shortly before this critical engagement started, that is to say, as soon as he had ascertained that the bulk of his Panzers had crossed the Oka without interference, and <sup>that</sup> artillery protection was assured. He drove to the left Kampfgruppe in order to coordinate its movements with the advance of the main Kampfgruppe. When he received the radio messages about the critical turn in the situation, he hurried back to the Panzers and arrived just when the above engagement had drawn to a close. He gave the order for the previously suggested withdrawal of the forces standing west of the Oka <sup>to the rear of the sector, secured the river</sup> and the bridge with infantry, mines, and Flaks, and sent out combat patrols on a wide front in the direction of Mzensk with main effort at both flanks.

Towards evening the left Kampfgruppe had reached the railroad and highway bridges across the Oka 4 kilometers north of Otrada, after overcome gradually lessening enemy resistance. The order for the next day was to continue the attack in the same manner as in the

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6 October 1941 (see sketch 3).

[5]

On 6 October, with clear autumn weather prevailing, the 4th Panzer Division once more assembled for the attack in two Kampfgruppen in generally the same formation as on the previous day.

The heavy artillery, 1 medium howitzer battalion and 1 howitzer battalion [210-mm. and larger], as well as one smoke-producing unit (150-mm. rockets), followed behind the right Kampfgruppe along the highway.

Once more the Oka bridge was crossed without any fighting. Upon reaching the hill 1 kilometer southwest of Woin, several T 34's (advanced) were engaged in a brief fire duel. They withdrew to the northeast. No losses occurred on either side.

On their descent towards Woin, a group of Russian T 34's fired on the German Panzers at a range of about 3,000 meters. The Russian tanks were standing well concealed among the trees and bushes at the edge of the woods approximately 1 km south of Podmokroje. The German artillery, field and medium howitzers, emplaced in the Oka valley ready to fire, immediately opened observed fire on the tanks. These dodged the fire again and again, but were still able to continue their own fire on the German Panzers. Once more there were Panzer losses on the German side.

In this critical situation the German Panzer commander decided to attack. Driving at great speed, the German Panzers advanced across the slope at Woin down to the bottom of the valley, and crossed the bridge over the creek under enemy fire. They tried to wheel northwest and to reach the woods south of the Dumtaschina railroad station, in order to approach the flank and rear of the enemy tanks from there. The enemy tanks recognized the danger and started a counterattack, immediately blocking the access to the woods. The German Panzers

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Once more the greatly superior fire power of the T 34's had disastrous results. One by one the German Panzers were disabled by enemy hits. The fire from the German Panzers had no effect.

Several 50-mm. Paks and two 88-mm. Flaks had advanced as far as Woin in the second Panzer wave. There they were mounted in poorly camouflaged, unfavorable positions at the edge of the village. The 88-mm. Flaks knocked out 2 Russian tanks. The fire of the 50-mm. Paks, on the other hand, had no effect at that range. Moreover, the Russians soon discovered the Paks and Flaks standing at Woin and smothered them with artillery and rocket fire (Stalinorgel) [multiple rocket launcher]. Any attempt to displace the clumsy 105-mm. <sup>medium</sup> guns with their huge prime movers into forward positions was out of the question in that completely open terrain. The indirect fire of the German artillery <sup>succeeded</sup> in harassing but not in disabling the Russian tanks. We had played our last trump without taking a trick.

There was nothing left to do but to move the Panzers through Woin to the south, out of the dangerous fire of the T 34's, unless we were willing to accept additional and unnecessary Panzer losses.

This difficult move <sup>ment</sup> was executed successfully but it caused additional painful losses. Approximately 10 German Panzers, including 2 artillery observation-post Panzers, were knocked out. The enemy had lost only 2 T 34's through fire from the 88-mm. Flak. As on the previous day, the German Panzers had not been able to deal a death blow to even one of the enemy tanks.

There was no longer any doubt that the Russian T 34's were superior in fire power and strength of armor. Up to that time the German Panzers, confident of their absolute superiority, had advanced against any enemy tank without hesitation, and had knocked them out at ranges <sup>of</sup> from 600 to 800 meters. Faced by the T 34's, they had to

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by all means. Now they had to try to sneak up on the enemy tanks <sup>in order</sup> under cover/to surprise them and fire on them from close range.

Otherwise there was nothing left but to avoid the T 34's and to limit the Panzers' activity to attacks on the enemy's infantry, artillery, and rear communication lines. In view of the failure of the small-caliber Pak (37-mm. and 50-mm), the defense against the enemy tanks had to be left to the few available 88-mm. Flaks, the 105-mm. <sup>medium</sup> guns, and the division artillery. Actually, this meant an abandoning of any offensive fighting against enemy tanks, a grave handicap indeed. Another reason for concern was the fact that the German armor no longer offered adequate protection against the armor-piercing shell of the T 34, not even at a range of 3,000 meters.

7 October 1941 (see sketch 4).

The mission of the 4th Panzer Division for 7 October was still the same: Continuation of the attack in direction of Mzensk, Tula. Immediate objective: Mzensk.

In view of the changed situation so far as the tanks were concerned, the division commander decided to continue the attack with the main effort west of the big highway in the sector of the reinforced rifle brigade, and to hold the Panzers back for the time being. They received orders to await a favorable opportunity for bypassing the enemy tanks for a surprise attack.

In the evening of 6 October strong combat reconnaissance was pushed forward. It was carried out on a broad front east of the big highway up to the Suscha by the reconnaissance battalion, and west of the big highway in direction of Mzensk by the rifle brigade.

The artillery received orders to detail one light battalion to the Panzer brigade, and to support the attack of the rifle brigade with the balance of its batteries.

The division commander concluded from the previous line of action

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The division commander concluded from the previous line of action of the enemy tanks that they were expecting the German attack to be

made mainly in the area of Podmokroje. He retained, therefore, several Panzers, keeping them available for an advance at the right moment on the Orel-Mzensk Road with the mission to locate the enemy tanks, to engage them in delaying actions, and <sup>mislead</sup> ~~to obscure~~ the enemy as to the direction of the attack made by our Panzers.

The developments during this day proved the appropriateness of these measures ~~there~~.

The riflemen, supported by strong artillery fire, worked their way forward to the Dumtschina railroad station in the course of the forenoon. However, when they tried to advance farther along the railroad line they received strong infantry and mortar fire from a position in and south of the woods 1 kilometer west of Wolkowo. The enemy riflemen had firmly installed themselves in an extensive field <sup>trenches</sup> in their well known round and deep standing/. The initial field howitzer and mortar rounds fired on them were not effective. Thereupon the heavy artillery, one 210-mm howitzer battalion, one medium howitzer battalion, and one rocket launcher [Nebelwerfer] battalion (with 150-mm high-explosive shells), placed concentrated observed <sup>were</sup> fire on this position. The heavy and medium howitzers/firing ricochets, so that the point of burst of the heavy shells was located from 5 to 15 meters above the position. Large elements of the forces occupying the position fled in a panic into the woods under destructive fire from German machine guns. When the German riflemen, protected by the fire from the artillery, reached the position they encountered no more resistance.

In the meantime, the German Panzers which had been retained by the division commander had driven forward undisturbed on the road to Mzensk as far as Podmokroje. There they engaged the Russian T 34's north and west of Wolkowo. By then these tanks fired on the German riflemen who were trying to make a thrust from the railroad overpass

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Shortly after that engagement had come to a stop in the early hours of the afternoon, a report from the Panzer commander was delivered to the division commander, who was coordinating and observing the action of the infantry and the artillery from the artillery commander's observation and command post at the northern edge of Podmokroje. The report stated that, in execution of his mission, the Panzer commander had found a favorable approach for an attack in the direction of Mzensk east of the Trotassowska - Mzensk road, had immediately led his Panzers forward to that spot without encountering any serious opposition, and that his advanced Panzers had already entered the city from the south in a surprise/ <sup>movement.</sup> He stated that the Suscha bridge was firmly in his hand.

This report was immediately given to the riflemen, stirring them to new enthusiasm, especially since almost at the same moment strong elements of the enemy tanks drove back to Mzensk, probably as a result of information received about the direct threat to that town.

One hour later the German infantry too had entered the western part of the town, while severe tank fighting raged in its eastern part.

During this day the German antitank weapons had taken only an indirect part in the fighting. All they could do was to take up positions behind the forward elements and give the infantry and the tanks support by overhead fire in case of surprise attacks by the enemy tanks. However, they had no opportunity to fire since the Russian tanks made no further attack.

The success achieved during that day, i. e., the penetration into the town of Mzensk despite the inferiority of the German armament as compared with that of the T 34's, was due to the elastic and adroit German command and the daring and quick action of the Panzers. Additional factors in outmaneuvering the enemy tanks were their shortcomings in reconnaissance and in coordinated command.

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Evening of 7 October to 10 October 1941.

During the street fighting in the evening of 7 October, and during the two following days, the T 34's made a poor showing. Their strength, i. e., their superior fire power at long ranges, could not come into play. The tank battle turned into a close-combat melee in the streets, in which greater mobility, the speed of loading and rate of fire, and especially a greater field of vision out of the tanks, gave the German Panzers superior chances. Many T 34's were knocked out in the city. The Panzers managed to knock out some of them at close range of less than 500 meters, but the main results were achieved by the German Paks, Flaks, and field guns emplaced in many spots in the city.

After two days the T 34's did no longer dare to enter the town. In the meantime, the 4th Panzer Division had completed the disposition of its artillery and had issued ammunition. Following a brief but intensive fire preparation, the northeastern part of the town of Mzensk, stubbornly defended by the Russians up to that time, was taken by an infantry attack.

During the course of these operations, the Russians had brought up strong infantry and armored forces from Tula to defend this important industrial and transportation center. For several weeks past, the hills east of Mzensk had been fortified by a deeply echeloned system of defense positions and mine fields so that it was no longer possible to continue the attack on Tula in the manner applied so far. It had become necessary also on the German side to bring up new forces, especially artillery. 22 October had arrived before it was possible to reassemble the Panzers of the corps and continue the attack.

Deductions and lessons learned from the operations, especially with regard to antitank defense.

The armor-piercing qualities of the German Panzer weapons and assault guns.

The appearance of the Russian T 34's during the tank battles at Woin had revealed a momentous change in the relative fighting strength of the tanks and antitank weapons.

The new 762-mm., approximately 50-caliber gun of the T 34, with a muzzle velocity of more than 700 meters per second, had far superior ballistic properties than the German short, 75-mm., 24-caliber gun of the Panzer IV, with its muzzle velocity of 450 meters per second, not to mention the 37-mm. or the 50-mm. gun of the Panzer III.

As early as 7 October the 4th Panzer Division had sent an initial report on the new Russian tank to Berlin and asked for a commission of ordnance experts. This commission arrived at the division two days later by plane. It was composed of representatives of the Inspector of the Panzer Troops, the Army Ordnance Office [Heereswaffenamt], and engineers of the armament manufacturers concerned.

Guided by a Panzer commander who had participated in the fighting, the battlefields were toured to inspect carefully the derelict T 34's and German Panzers. It became obvious that far-reaching modifications in ordnance equipment had to be introduced immediately. It was imperative to equip the Panzers, the assault guns, and the Paks with an armor-piercing weapon of increased effectiveness, similar to that of the T 34's.\*

Fortunately the Army Ordnance Office and the armament factories had already taken preliminary steps in this direction. Several pilot models of armor-piercing shells and 75-mm., 48-caliber guns with

\*Editor's Note: This is the exact translation of the original German text, which is garbled. The writer obviously intended to say as follows: "It was imperative to build new assault guns and Paks with greater armor-piercing effectiveness, similar to that of the guns of the T 34's, and

regard to antitank defense.

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muzzle velocity of 700 meters per second had been fully developed and tested.

[8]

It should be noted that the ballistics experts had suggested the introduction of this type of gun at the time when the Panzer IV was being developed. However, the Panzer experts did not approve of this gun, stating that it was too clumsy, that in firing to the side the barrel was extending too far beyond the track width; moreover the long barrel recoil and the longer ammunition excessively restricted the space available for the crews.

Thanks to this far-sighted preliminary work, it was possible to tackle the changes in equipment immediately. Nevertheless, it took almost six months before the first Panzer IV's with the new long tube reached the front.

Equally urgent was the reinforcement of the armor, especially of the front plate. Both changes added weight to the front end of the Panzers. Detrimental results were the increase in ground pressure per unit area and the decrease in cross-country mobility, as well as a decided forward shift of the center of gravity which greatly reduced the maneuverability of the Panzer and the life expectancy of the transmission, the tracks, and the track suspension.

A similar situation prevailed in the case of the assault guns. Originally these had been requested and constructed to give close support to the infantry during attacks, especially during the last 200 meters of the assault when the division artillery frequently proved inadequate.

The assault gun was designed to support penetrations and break-throughs through the enemy infantry zone by smashing enemy machine-gun emplacements and pockets of resistance by direct fire from positions in the forward infantry lines.

Defensive and offensive antitank combat missions at first were supplementary duties which, however, during the course of the war gained in importance until they finally became the main mission of the assault guns. Thus they were transformed into antitank weapons.

The appearance of the T 34 made it imperative to equip also the assault gun motor carriages with long guns of great armor-piercing power\* and with reinforced front armor. In the meantime, the original mission of the assault guns had been taken over generally, and in a satisfactory manner, by the mortars which proved to be an excellent infantry weapon for attacks.

The experiences gained during the fighting at Woin and the careful inspection of the captured T 34's moreover made clear other important advantages and disadvantages of the new type of tank. The most outstanding features were the sharp slant and the thickness of the front armor plate, and the wide tracks which obviously imparted an extraordinary cross-country mobility to the tanks through mud, swamps, or snow, a fact which was subsequently fully proved and which greatly increased the combat value of the T 34's.

Since the overall width of the tanks is dependent upon the clearance of the railroads and upon the width of military bridges built to conform to the railroads, such wide tracks could be obtained only by severely narrowing down the space inside of the tank. To be sure, this lowered the weight of the tank, an added advantage so far as ground pressure was concerned. However, in conjunction with the space-consuming, strongly sloping front armor, it also reduced the space available to the tank crews to an almost unbearable minimum.

An outstanding feature which moreover greatly increased the T 34's mobility and speed, as well as their performance in starting and their maximum gradability, was their powerful aircraft engine which later on was replaced by a high-powered Diesel engine.

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An outstanding feature which moreover greatly increased the T 34's mobility and speed, as well as their performance in starting and their maximum gradability, was their powerful aircraft engine which later on was replaced by a high-powered Diesel engine.

On the other hand, the T 34 had its weak features too. Items to cause concern were the poor visibility out of the tanks to the front

\*Editor's note: The following is the literal translation of the German text: "... to equip the assault guns with long guns of great armor-piercing power."  
The German text is apparently garbled.



and especially to the sides, as well as the absence of the important command turret affording a good all-around observation. These weak features had become apparent during the very first day of combat. Twice a whole tank battalion drove close past the muzzles of a firing howitzer battery and suffered losses without discovering the battery. Moreover, they were insufficiently equipped with radio sets. Usually only the company commanders had any radio equipment at all.

In general, the willingness of the troops to use captured weapon represents an unfailing yardstick for the value of such a weapon. The German Panzer troops were never quite at home in the many captured T 34's. To be sure, they liked to use them to tow away other vehicles, but for combat they employed them only in an emergency.

#### The Paks and the Flaks.

So far as armor-piercing effect was concerned, the 37-mm. and 50-mm. Paks proved to be absolutely insufficient for combat against the new T 34's with their strong armor.

Anticipating the possibility of such a development as early as 1940, Krupp and Rheinmetall had been ordered by the Army Ordnance Office to construct and test a 75-mm. Pak on a split-trail carriage.

Rheinmetall based its construction of the Pak on the above-mentioned 75-mm, 48-caliber barrel with a normal armor-piercing high-explosive shell. This resulted in the 75-mm. Pak model 40 which was subsequently adopted.

Krupp used a new ballistic principle in the construction of its 75-mm. Pak model 41. An armor-piercing projectile with a hard tungsten core (without explosive charge) was shot through a tapered barrel with a diameter of 75 mm. at the breech end and 50 mm. at the muzzle end. The Pak model 40 could pierce armor of [www.maparchive.ru](http://www.maparchive.ru)

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(American 30 degrees) The hard-core projectile of the Pak model 41 was almost twice as effective.

Only the 75-mm.Pak was introduced however, even though an experimental series of the 75-mm.Pak model 41 achieved excellent results in knocking out enemy tanks when used at the front. This was due to the fact that the tungsten required for the manufacture of the armor-piercing hard-core shell for the Pak model 41 was not available.

It had further become evident that the 88-mm.Flaks and the 105-mm. guns could, with their armor-piercing high-explosive shells, easily penetrate even the T34's at a range of 3,000 meters, in one instance even at 4,000 meters. However, they had a chance of success only when employed in purely defensive action in a prepared gun position. In offensive action their high profile, their big prime movers, and the complicated process of preparing them for action, made them an easy prey to the tanks even before they themselves could open fire. Only the introduction of self-propelled mounts could remedy the short-coming.

Promising experiments were under way in this respect too; for the time being, however, only with a tube of the 75-mm.Pak model 40 mounted on<sup>a</sup>/carriage of the Panzer II which had become unsuited for tank warfare. Gradually the troops too became convinced that the Pak on<sup>a</sup>/split-trail carriage was obsolescent and had to be replaced by a gun carriage with<sup>a</sup>/360° pivot mount.

#### The Artillery.

The 105-mm.armor-piercing shell of the field howitzer model 18 had proved effective against the T34's at close ranges up to about 300 meters. The field gun, too, was able to hold its own against the new Russian tank by using this type of shell. However, here again the <sup>a</sup>split-trail carriage with its relatively limited field of lateral

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fire was a handicap. With the increasing importance of tank warfare it became more and more desirable to equip the field gun with a 360° pivot mount. Such a mount was fully developed, but was completed too late to be introduced.

Close-Combat Weapons and Ammunition for Tank Warfare.

In house-to-house fighting and in close combat the poor vision and insufficient armament had proved to be definite shortcomings of the T 34's. The German troops, however, lacked suitable means to attack the tanks at close range. At that time, the troops were familiar only with grenade clusters [geballte Ladung] and with magnetic hollow charges. It was necessary to push the development of new and more effective arms and ammunition. Two weapons under development at the time looked particularly promising, i.e., the Panzerschreck (Bazooka) and the Panzerfaust [recoilless antitank grenade and launcher--both expendable], both of which were based on a combination of the hollow charge and the rocket principle. The best results were subsequently achieved with the Panzerfaust. It was produced in large quantities and employed with great success.

[10]

Conclusion.

The surprise appearance of an improved type of Russian tank had a far-reaching effect upon German tactics in tank warfare and antitank defense. The German command was compelled to meet the challenge of this new type of tank by improving our own Panzers and means of antitank defense with the utmost speed.

Typical of the technological level reached by the Russians is the fact that they achieved a temporary superiority only in the fields of the basic components of the tank -- armor plate, engines, tracks, and guns -- while they were constantly lagging behind, and had an-  
encountered

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Typical of the technological level reached by the Russians is the fact that they achieved a temporary superiority only in the fields of the basic components of the tank -- armor plate, engines, tracks, and guns -- while they were constantly lagging behind, and had apparently/unsurmountable difficulties, in the manufacture of such

mechanical precision parts as sighting, optical, and radio instruments.

No material changes are to be expected in this respect for some years to come.

The Panthers, Tigers, and King Tigers [three types of German tanks described in TM.E.30-451, p. VII 80, 82, and 83] were being developed as early as 1941. Not until they had<sup>been</sup> introduced did the German Panzer force once more receive Panzers which not only caught up with the technological advances of the Russians, but whose quality was far superior to that of the Russian tanks to the end of the war. It was the German armament industry and its inability to keep pace with the enemy's output that forced the German Panzers to fight against a numerical superiority which was becoming more and more overpowering as the years went by.

During the course of the last years of war, the assault guns and the various models of self-propelled guns became gradually the most important weapons in antitank defense.

[signed:]

No. 313.

[Translated: July 1940: M. Bauer.]

[Reviewed: JHB]

56° 30'

32°

34°

36°

38°

Beats. 313

# SKIZZE 1

Operative Lage

am 1. 10. 1941

M 1: 2 000 000

500

0 20 40 60 80 100 Km

MOSCOW

Tula

54°

Roslavl

Bryansk

2. Armee

Desna

Orel

Dnieper

Gomel

Dmitrovsk

Sevsk

XXXXVII



54°

2

o Roslavl

o Bryansk

2. Armee

o Orel

Dnieper

o Gomel

Desna

o Dmitrovsk

52°

XXXXVII  
Pz. Korps

Sovsk

XXIV Pz. Korps

o Glukhov

o Kursk

Panzergruppe 2

Seim

Seim

Desna

o Konotop

XXXXVIII Pz. Korps

o Kiev

6. Armee

Lubiri

o Kharkov

50°



\* = abgeschossene deutsche Panzer

5900

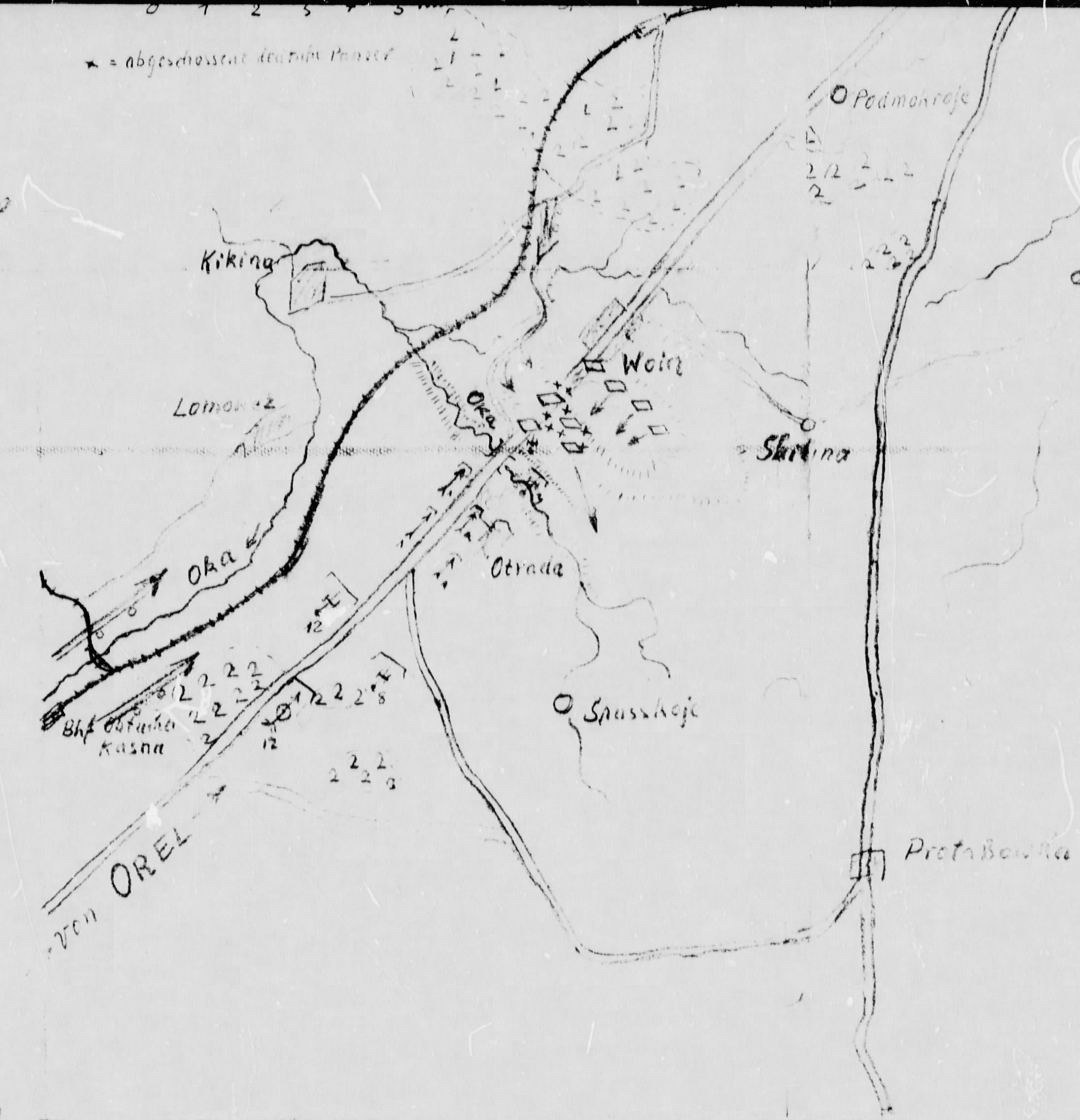
5900

5890

5890

5880

5880



17315

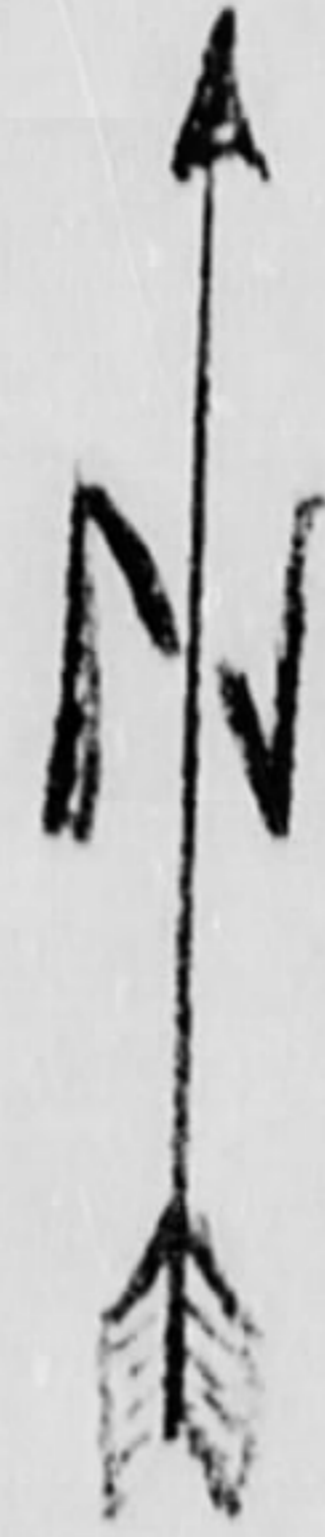
17320

17330

17340

Beauf. Nr 313  
17320

Bf. Dumtschina



5700

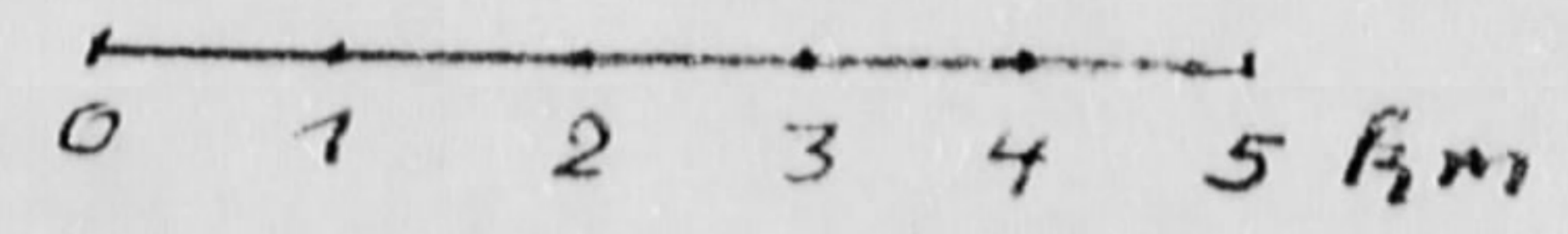
Kikino

2110h Podmetenje  
2 2 2 2  
2 2 2 2  
2 2 2 2

SKIZZE 2 b.

2 2 2  
Der 5.10.1941

M 1:100 000



x x = Abschnisse

VON OREL

Otrada

17330

Spasskoje

5890

10-253

Bearb. Nr. 313

Mzensk

7320  
5900



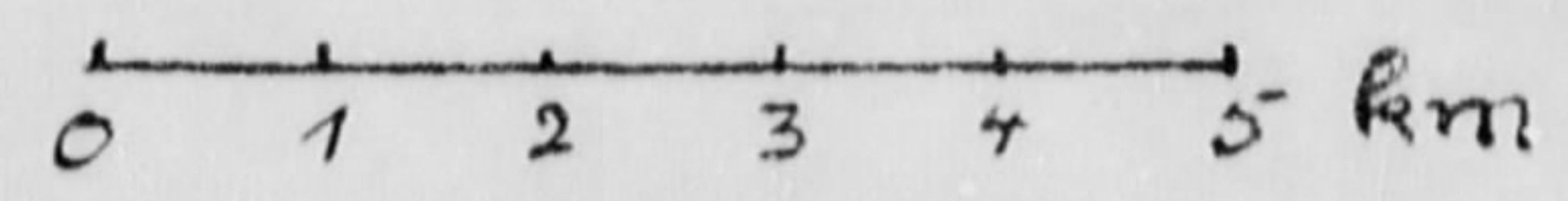
Bf. Dantschinsk

Wolkowo

SKIZZE 3

Der 6. 10. 1941

M 1: 100 000



x = abgeschossene deutsche Pz.  
x = " russische Pz.

7320

5900

Kikino

Podmakroje

Woin

Shilina

Otrada

Von Orel

7340

5890

