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SOURCE

The attached pamphlet, which describes the experiences of the German Army in the USSR [redacted] It is being sent to you for retention as of possible interest in the analysis of Soviet armored tactics.

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Experiences of the Soviet Theater of War

1941 - 1945

Preface

The German preventive war against the SU was Europe's last attempt to decisively weaken the biologically and politically increasing avalanche of the East, in order to eliminate any threat in the future. Western Europe, degenerated by culture and civilization, weakened by the wars of the past and by the decreasing birthrate did not solve this task and had to give up its hegemony. The sources of the Soviet success were the inexhaustible resources, the primitive standard of living and the unbelievable tenacity of the Communist ideology.

Survey

No nation of the world has ever lived in such endless a slavery and oppression as the present people of the SU. Thanks to the proverbial procreative instinct of the mothers and the unbelievable vitality of the steppe peoples who are used to primitive conditions, the people survived extermination, slavery and despotism. The once rich and melancholic soul of the people has disappeared. It seems as if the incessant melting processes within the USSR extinguished all softness and only hard metals remained. The face of the Soviet citizen shows an unpenetrable mask. Instead of individual characteristics only expressionless uniformity is found. The merciless cruelty roots in the animal-like instinct of the struggle for existence and increases as one progresses Eastward. The political system is complete. The fear of surveillance dominates all phases of livelihood in the "workers' paradise". The Communist ideology must be accepted by all the people. Communist principles are propounded with an intensity unbelievable to us. In this connection the schoolbooks and literature of the youth and the troop manual "The Political Education of the Soviet Army" are especially interesting. The Soviet believes in a fraternization of the world on a Communist basis and is convinced that Fascism and Capitalism are the only obstacles.

The goal is the destruction of all hostile neighbors and systems. (Hostile is everything that is not under Soviet influence.) The armament industry is everything, even if the living standard decreases continuously, even if no consumer goods at all are produced. Nihilism, Stoicism and the complete ignorance of conditions in the outer world make "comrade soldier of the Red Army" a tool of USSR foreign policy.

The police, the ideas of conquest and militarism condemned by the Allies in Germany were poor imitations of what exists in the Soviet Union. The SU did not only carry out the principle of "total war", but also proved to be a successful teacher in the methods of total war.

He who goes to the East, not only has to abolish European ideas of courtesy, but, above all, has to forget chivalrous human rules of conduct as outlined by the Geneva Conventions.

The total war of Soviet conception knows only the surviver and the defeated.

The enormous width and depth of the territory, comparatively little exposed, was the best ally of the Red Army in the first phase of the war. For example, all villages and crops were burnt in the course of the retreat, according to the method successfully used against Napoleon. One understands this type of action, considering what houses and villages mean for an invader surprised by winter. The attempt to make the Germans responsible for all these devastations, originates from an untrue propaganda campaign.

The village, in winter, was synonymous with warmth, i.e., life. Many a desparate attack was undertaken without true military significance, for the one purpose of driving the enemy from a village.

Thanks to clear-sighted methods the Soviets succeeded in a surprisingly short time and with good execution in transferring the endangered armament industry.

While the Donets Basin and the important industrial area of KRIVOI ROG fell in our hand destroyed and unusable, the plants were shipped to the Ural Mts., including every nail and laborer. In a few days work was resumed, but of course with much improvization. By this movement the problem of the colonization of this uninhabited area was solved.

Due to the lack of a strong air force, on both sides the decision was, from the very beginning, in the hands of the tank forces. In the first year of the war, the numerically strong, but technically weak Soviet tank force was no opponent for the victorious German tank divisions.

The first effective defense-measure was the "Holzkasten-Mine" (wooden-box mine), which were used in atronomic numbers.

After this attempt the antitank guns appeared also in unbelievable masses. These two weapons and last but not least "General Winter" brought the German Armies to a standstill.

Now the Soviets could think about bringing the principle office to bear. Prerequisite for this was the third step, the creation of a superior tank as an offensive weapon. The standard model was the "T 34" tank. When this mass program was successfully concluded, the last measure was the development of an effective self-propelled gun to support the infantry. From planning to brutal realization, from immense production rate to detailed norming and typification, this entire performance must be respected.

Hand in hand with this industrial mobilization went the utilization of the inexhaustible human reservoir: age and sex were not given consideration in this respect. The percentage of women and children performing the work of men surpasses European comprehension.

It is a proven fact that women were also fighting. I remember two cases where women were among the attacking, mounted on tanks. One woman (with make up and polished nails) with the rank of a first lieutenant was lead before me for interview. She declared that she was guilty of mistreating subordinates. As punishment she was given a probation period at the front. She had to take part in three tank attacks. When hearing my decision that would work in a hospital, the young lady became rebellious and shouted: "I am a soldier, as well as you are. I won't go in a hospital. Old women can empty chamber-pots."

Give the Russian citizen a weapon - it make no difference if man or woman - and he is a soldier. The natural, instinctive impulse of the hunter still exists. The conception of an uncultivated civilian, familiar to us, therefore, hardly appeared. Order women of a village to construct a tank ditch or a machine-gun emplacement and the work will not only be done in surprisingly short time and with thoroughness, but the tactical lay-out will be correct.

Terrain judgment and terrain utilization, things which had to be learned by our towns-people on the troop training grounds, is an instinct with these people. It is, therefore, not surprising that the Russian leadership could fill up the gaps in front units to a great part from the population who were not subject to military service.

All inhabitants of liberated areas and towns were immediately utilized as soldiers and with or without arms joined the attacks some hours later.

Three days after the delivery of KHARKOV, the pursuer squeezed more than 100,000 soldiers out of this town. For our conception and needs these people were physically useless. An insoluble problem of retreating German troops was the evacuation of the population in the abandoned areas. The pursuing enemy seemed to ridicule all losses; absorbing new recruits in every town and village retaken, all resistance to this program being destroyed.

At the end of the German soldier sat in his emplacement like the rabbit before the snake. He only knew, but did not comprehend that this approaching beast lived spiritually on a completely different basis and also fought differently. After the obvious failure of all predictions and suppositions he despaired of his ability of judgment, there being no standard which he understood which could be applied to the resistance and fortitude of the enemy. This factor caused panic and decisively undermined the morale of the German Army. Interesting in this connection is that the paralyzing pressure on the mind caused by Russian methods, vanished like a bad dream from our soldiers' mind when they returned to their native cultural sphere. They perceived the Western Front as recreation in spite of higher losses and once removed from the Russian front they felt superior to the Russian soldier.

The harrassing of our rear areas by partisans was extraordinary and increased with the victories at the front. German supply shipments were directed to ambushes by Russians disguised as MPs and destroyed. The supply and support units were separated from the front by an ever increasing distance due to acts of sabotage behind the front.

Hunger rather than national feeling is the motivating reason for partisan activities. For this reason the Red Army had also to fight partisans in their rear areas. If one succeeds in convincing the population that collaboration with the occupation power is more favorable than secret (mostly forced) support of the rebels, there would be no more reason for continuous partisan activities. (Compare the German Wer-wolf-Movement).

The Russian losses were - by our conceptions - immense. But the conclusion would be wrong, that this was due to senseless mass sacrifices. On the contrary, a brutal but icecold calculation of the potential can be discerned.

An individual is valued according to his usefulness to the state. Therefore, the task was to commit only as much first rate material as required to execute the mission. First rate troops were always spared and old men and women were used instead, these people being of no further use to the state. If a German bridgehead was to be eliminated, the first attack was made by Gds divisions. When the objective of the attack was reached and the new line ready to be defended, these troops were withdrawn immediately and replaced by poorly armed cripples and old men.

Because there was no retreat in the stab-in-the-neck system, the replacements had to fight for their lines and, in the long run, accomplished their mission. But the German intelligence service triumphantly reported to the Headquarters: "The Soviets are finished and have exhausted their potential. We are only fighting old men and cripples without combat value." In the meantime, the enemy trained his young men carefully on a long-term basis.

At the end of the war I fought against airborne-divisions (30-50 jumps at an average), which had been in no combat for 3 years.

Due to traffic difficulties, imposed on every soldier going on leave, a special problem arose. This was the birth-rate decrease expected after the war. Many sources (prisoners also) maintained, independently of each other, that the government ordered "artificial insemmination" for the Russian women. This action could be classified as typical for this incalculable and incomprehensible country.

There is no doubt that the countries enslaved and influenced by the SU have to perform "human reparations". Intelligentsia and skilled workers are scarce in the SU and, therefore, rank first on this list.

Apart from the compensation of the losses during the war this means a program of human reparation and improves the blood of the country. The effect should not be underestimated. Therefore, the USSR, penetrated by the idea of world revolution, not only disposes over one sixth of the inhabitable earth surface, but also has the possibilities of doubling by such means.

Today, Russia is a sealed book. May the curtain never lift for a second act. If this happens, the Occident could then bury its present culture and start writing a new history.

Fighting Methods

A. Infantry

The Soviet infantryman is tough, persistant, sly and unbelievably modest. Because bravery and intelligence are in proportion to each other, his stubbornness and defiance of death must be explained by the fatalistic mentality of his race. Instead of culture one often finds one-sided trained specialism. In spite of all primitivity one cannot consider him stupid. This extraordinary zeal for learning and apelike nature make the Soviet soldier not only a master of infantry skillsm in entrenching, camouflaging, etc., but he himself is the personified improvization of a perfect infantry soldier.

These abilities plus the instinct mentioned above make him, under good leadership, a dangerous enemy.

Because there is enough material concerning organization and T/O in the following I will present only the essential basic ideas.

I. Reconnaissance Unit

While our reconnaissance units generally did not fight, but only observed, the Soviet reconnaissance units usually both observed and fought. The personnel strength is about one battalion. On a broad front incessent (mostly night) "reconnaissance attacks" were made to detect the weakest point of the enemy lines. If a soft spot is found, the unit settles, entrenches, and calls reinforcements. If, in this way, several assaults with these reinforcements succeed, and the defender cannot destroy them immediately in a counterattack, an unbroken line of defense cannot be kept. Over the dead of the sacrificed "reconnaissance" the Russian waves go over to an improvised attack in the broken line. As protection against the reconnaissance, a roving unit was used to fill breaks in the line.

II. Attack

Increasing reconnaissance and artillery were, as a rule, signs of an impending attack. The transfer and concentration of troops and material and preparations for attack were excellently camouflaged by the enemy. On the other hand, if there was sufficient time, land reconnaissance and continuous air reconnaissance supplied the heavy weapons and infantry with a correct picture of the German strong points, down to machine gun emplacements. I found sketches of targets and fire-plans of precision and perfection that a war academy might be proud of.

Some hours before the attack, innumerable antitank guns were emplaced in measured and well built emplacements. After heavy artillery fire, the attack started generally at dawn. The antitank guns started a murderous converging fire on all our known infantry weapons and, at the same time, frustrated a possible German tank counterattack.

The infantry, brought to the point of assault under protection of darkness, rushed to the first assault points under this fire protection. If the main fighting line could be penetrated, the infantry turned to the right and left, advancing up the trenches in hand-to-hand fighting. If the terrain was without mines, tanks with mounted infantry followed immediately; otherwise several strips were first cleared of mines. If the defender succeeded in separating the infantry from the tanks, he could probably defeat the enemy. If no commissar with a pulled pistol was behind him, the Soviet soldier showed remarkably little resolution, ability or initiative. Instead of taking advantage of the success, and breaking through the remaining resistance, he often wasted his time in single actions and looting. We won time for counterattacks and amazing successes were achieved with ridiculous small forces, sometimes only 4 to 5 men or 1 to 2 tanks. I always saw counterattacked Soviets weak and emotional and always disorganized. If the attack comes to a standstill, they entrench. Antitank guns are advanced, and the infantry disppeared with mole-like speed in the soil. If the attack is successful, the infantry is trucked right behind the first tanks and pursues the enemy with far-set goals. Here the Soviets completely adopted German principles.

as they also adopted the principal attack formation. The amazing mobility of the antitank guns, also committed as artillery, must always be noted as especially characteristic and dangerous. No vehicle - tank, tractor, truck or personnel car - advances without pulling one of these guns or at least one heavy mortar. In rapid commitment these weapons secure the territory won and help prevent retreat. Logistic units, in our sense of the word, are unknown to the Soviets. Ammunition and fuel, only, are supplied. Baggage is unknown and food rations must be taken from the country. Although in the first years all infantry was horse-drawn, they showed an amazing mobility. The much ridiculed "panje-columns" not only knew how to get rid of the motorized German persecutors, but were even superior to them in winter and during the mud and rain period. The combat pack of the infantryman contains everything to make him independent from every supply for at least one week: hard bread, some tobacco and cleaning stuff for his weapons. This self-sufficiency is surpassed only by his horses. At the end of the war automatic weapon equipment surpassed ours considerably.

Night Attack

"The night is the friend of the strong" says our regulation. For the Soviets must be applied: "The night is the time of the wild animals". His natural instincts make him especially dangerous at night. As the purpose of a night attack is a sudden surprise, it is generally carried out without artillery or air support - at least in the first phase.

If the attack is directed against a line, one advances in broad front, without forming a point of concentration. This is formed later from the first successes, and, by means of W/T message, the reserves, which were in readiness behind the front line, are called. It is well known that the Soviet is an expert in sneaking up. Directed by occasional, inconspicuous signal shots by machine guns, installed by the Russian outposts, the shock troops advance to noiselessly capture the sentries. If this silent method fails, he tries to spread panic with ear-splitting noise. At the same time blanket fire on the enemy position is ordered, to frustrate relief. Flame throwers, hand grenades, spades and daggers play the main part in this fight. Strong German resistance is avoided and the typical "safety tactic" started.

Safety Tactic

Like drops leaking through a net, small groups move towards the enemy. A central plan does not exist. Regardless of threats from the flanks and danger of being cut off from the main force, they mechanically grope their way through and march continuously. Commanding officer's observation posts and heavy weapons and artillery emplacements were sometimes completely surprised. If it is possible to get reinforcements by means of W/T message a real assault is the result. This develops immediately into a principal attack. Otherwise they remain calm, entrench or disappear among the population. After a few hours the defender is already completely confused. From all sides panic and catastrophy reports arrive. The telephone net is destroyed and control is completely lost.

The enemy is now between the still intact main fighting line and the commanding officer's posts. There is no leadership and the groups in the trenches are entirely dependent upon themselves. They draw in their flanks and form a defense ring. By this, the gap broadens and the front breaks down completely. In other words, under utilization of the darkness and the morale effects, individual moles sneak in through the broad front and secretly caused the destruction of the dam. Only isles of resistance remained of a solid front. The former front must be abandoned and a new line formed in the rear. Note: The front between the Caucasus and the Arctic Sea was very thinly occupied. The "through-line" sometimes was only fortified villages. Generally, a division had to defend a section of 80 km. The attacker not only could chose where he would attack, but also knew that he could succeed anywhere.

If a night attack was directed against a village, serving as strong point, infantry and tanks generally cooperated. The tanks advanced past the objective of the attack and turned in from the rear. The infantry simultaneously attacked under the fire protection of tanks and antitank guns. Only he who knows the noise of a tanks and is awakened by it in pitch-dark night, can judge the immense morale effect of this fighting method. The German troops in STALINGRAD additionally suffered a continuously increasing irritability in the flanks and rear as well as a pronounced siege psychosis. The burning village blindfolded the defender and caused panic. He has to give up the village, exit, and hurdles together making an easy target for the energetically attacking enemy. If there is a street fight, the Soviets always try to "smoke out" all resistance. House by house is set on fire by incendiaries

and destroyed from short distances by tanks. If the strong point is won in this way, the infantrymen immediately start a perimeter defense where the skill in handling captured weapons is especially remarkable, as well as the strong commitment of tanks and mines. This is the principle, also of absolute superiority and far-reaching attack.

III. Defense

The Soviet soldier outdoes every soldier known to me in defense. The reasons for this are found in his mentality and the above mentioned characteristics. In addition there is the commissar and politruk-system, interfering with everything, which makes a retreat impossible.

The position, in which the infantryman turns over to the defense, corresponds in its composition to the generally used pattern. Front slopes and elevated positions are especially favored. Striking characteristics are: Good selection of the terrain and adaptation, unbelievable earth works well camouflaged; that is not to be surpassed, as well as an unusual depth of the main fighting line. The trenches are constructed in W-shape or in shape of a horseshoe opened to the enemy to increase flanking possibilities.

Numerous mines serve as close-range protection. If a tank-proof section is not in front of the position, there are usually tank ditches (sometimes 3 consecutively). These ditches have been constructed by the population long before. Machine guns are sent in a great number to the front. Even greater is the number of bazookas (about 30 pieces for 100 m of trench). In addition, every infantryman is equipped with hand grenades, bazookas, (an improved type) and incendiary projectiles (known as "Molotov-Cocktails"). The sharpshooters are numerous and are especially feared. The training was conducted in special schools, where they were trained as specialists for shooting in the head or in the belly. An automatic rifle with a small but very good sighting telescope is effective for a range of 800 m. Explosive ammunition is used exclusively (better observation). Officers, tank commanders, gunners No. 1, etc. are especially endangered. Should a surgeon have the nerve to wear a red-cross armband he would be shot at first. In this connection the Soviet thinks very materialistically. The training of a surgeon lasts very

long. He is not as easily to replace as another officer. His death may cause the death of a great number of injured, waiting in vain for help. The damage done to the enemy is, therefore, very great and that is the meaning of the total desparate fight, not "humane sensations".

The depth of the main fighting field is interlaced like a chess-board by antitank gun emplacements. These are protected by infantry and represent the real backbone. The horse-shoe formation is very common, because an attacking tank enemy can be put under fire from three sides. There are no dead angles in the sector of outposts. The selection of the emplacements is very favorable and in accordance with the fire-plan of the artillety. Every student of a European military academy could only learn from these facts. Antitank guns are committed as:

(a) Antitank strong points
(b) Antitank fronts
(c) Antitank cut-offs

As to (a)

Several antitank guns are emplaced in a close place in such a way that they can, apart from their special missions, protect each other. Principle: Defense ring ("Igelstellung"). Angle of wheelingL 360°.

As to (b)

On broad front line numerous antitank guns are emplaced on the same level. Their missions are of an artillery and blocking nature. Every gun has a sketch of target with exact data on the effective range.

As to (c)

Commitment and use see (b), only on a smaller scale. Particularly blocking of crossings and straits.

Mortars

The mortar is very popular and much used in the Red Army. While the light mortars are committed in the

trenches, the commitment of heavy mortars is done from strong points in depth. In perfect positions the fire from batteries and battalions is concentrated. Because of the speed and the accuracy of firing the effect is extraordinary.

Communication System

The communication system shows an unusual commitment of operators. Almost every trench and strong point is connected to a wide-spread net. Wireless telephone sets were seldom found. Hamming was, therefore, frequent and had a disadvantageous effect on the leadership of the defender. The attacking infantry is unheeding of threats from the flanks and the rear, and almost abandoned their fear of tanks. Stubborn and fatalistic he sat in his hole, even in complete hopeless situations, and had to be killed individually. On the other hand, when there are no political officers left, whole units surrender. If there is a good example the others follow like a herd. Subleaders have no initiative in counterattack. The fire-discipline of the Soviets is low. They have a childish fun when there is shooting, and do not know ammunition tactics. The antitank guns shoot individual infantrymen and the bazookas are handled like ordinary rifles. But it must be mentioned that the effect on the attacking infantry is immense. Apart from the excellent accuracy, the demoralizing noise of firing is decisive. If the enemy breaks through the main fighting line, the Soviets try to become smaller and to hide themselves. At nightfall they shut off the line again, to cut off the attacker from supply. Systematic individual fighters hide in straw piles, burnt down tanks or even in excavated corpse of horses and endanger the supply traffic with good single shots even after several days. During the battle on the main fighting line, the artillery ruthlessly take their own lines under fire. Attempts at flight are prevented by emplaced machine guns and commissars' pistols in the rear. As long as the Soviets are entrenched, they endure artillery fire with stubbornness. In the open field they are much more sensitive than our troops. German "Stukas" and smoke serrens often caused a panic-like retreat. The Soviet infantryman is also a master in the defense of towns and villages. LENINGRAD and SEVASTOPOL are striking examples. Preparations for this in principle are made early and far-sightedly, even when there is no danger. The necessary emplacements and tank ditches are constructed with the help of the population. Compared to our

well organized measures regarding the same, there is little time needed. This is due to the fact that there is no need to found democratic organizations and construction staffs, but only an occasional gesture with a pistol. During combat the centralized defense of a city is impossible, because the entire system concerning transmission or orders and reports breaks down. Therefore, the command is in the hands of energetic and independent sub-leaders, starting with the sector-commander to the commander of a bloc of houses. The concerned population is also under their command and are committed in the fight. Starting in the center, concentric defense rings advance through the fortifications to the periphery. Every street crossing or street-fork is blocked by barriers. Paths through this labyrinth are only known to initiates. Furthermore, for the protection against tanks, the pavement is town out and the electric overhead wires are laid on theground. Mharged tank positions are behind every barrier. For close-range protection the infantry occupies the houses located around it. Sharp-shooters are posted at the most impossible places and have numerous alternate positions already prepared (the sharp-shooter psychosis very easily affects the attacker). Other infantrymen break through the walls of cellars in cooperation with the inhabitants of the houses in order to erect an underground net. Furthermore, tanks and antitank guns are the backbone of the defense. Antitank guns are emplaced especially in different stories and on roofs. The hardiness, perseverance, and the ability to suffer, shown by the Soviet soldier in house-to-house fighting, is horrible. The totality with which old men, women and children are committed, is unbelievable.

IV. Retreat

During the battles of the first year of the war we were always surprised at the smooth Russian retreats. The retreat was carried out on briad front and cross-country. The roads, used by the advancing enemy, were not used, but completely mined. The mobility of the light horse-drawn infantry was superior to our motorized units. No weapons, steel helmets, or other equipment were thrown away. If possible, even the dead were taken along, this to veil the rate of casualties.

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Before the retreat, towns and villages were destroyed or prepared. This means that, apart from the execution and preparation of numerous demolitions, quarters were xtrapped. In this connection, the most frequently used strategics were hand grenades fastened on the inner door-knob, mines in stoves, hearths, in beds and under the door-sill. I also found water polluted by carcasses. Skill in the handling of mines by the Soviets is amazing. The infantrymen and even the civilian population show a striking skill in the laying and the removal of mine fields. Rear details are committed on the retreat according to our regulations. The main task is to be carried out by engineers, tanks and antitank guns. The cold-bloodedness of the antitank gunners is especially noteworthy. As the last shell is shot, a truck comes and, without haste, the gun is moved away, even if enemy tanks are at a distance of about 500 men. If the gun cannot be saved, at least the aiming device is taken along or dug in. Otherwise the gunner No. 1 is shot. Principally, mine fields are under fire protection. Dummy works are frequently used, as well as uncharged mines not dug in. If the attacker removed these and believes he has open way, he now comes on dug-in charged mines. Sharp-shooters and demolition details remain in the cities. If the mission is completed, they disappear into the population and become trainers for partisan fights. Espionage, sabotage and intelligence work are highly developed; they are promoted by education and the character of the people.

B. Artillery

The Soviet artillery played no decisive role. Even though its mobility was always great, the German principles as for instance fire concentration and creating of strong points were clearly recognized only at the end of the war. Mass fire (up to about 100 batteries) then were a rule. Drum fire, lasting for several hours, started a great battle. Mostly, the effect was not very great. The mobility in adjusting sights was not very good. Faulty cooperation between infantry and observers was due to the lack of suitable equipment. The development and the commitment of rocket weapons ("Stalinorgel") was furthered. Trucks equipped with slide rails were committed in great numbers. In spite of the great mobility the effect did not correspond to the noise of discharge. The Soviet artillery in its quality was by no means comparable with the American.

C. Air Force

As the Soviet Air Force at present is in its development stage, this chapter is done with a few words. The strong-point was the production of GA planes of type IL-2. By dropping numerous small, high-sensitive fragmentation bombs they were very effective. The retreat was accompanied by incessant low-flying attacks of units comprising up to 100 planes. The sensitivity of Russian pilots to German AA artillery and infantry fire was striking.

D. Armored Command

The wooden-box mine and the antitank artillery prevented defeat, and the armored command gained victory for the Soviets.

Because there is sufficient material about T/O and composition of the Soviet tank brigades, I need not go into details. These units were equipped with tanks of the following types: K.W. I, K.W. II, T-34, and JS (Josef Stalin). I mention only the principle types. The T-34 is the standard type, and its principles are also expressed in later types. "Christie"-rolling gears and an elegant profile are the characteristics. It is built according to the principle: The less mechanization, the less sources of fault. This makes a primitive and makeshift impression, especially on our technically spoiled senses. But just because it is uncomplicated and corresponds to the spiritual level of its occupants, it possesses an amazing undestructibleness. The speed (about 90 km on the road and 60 km cross-country at a maximum) is its best feature, besides favorable weight. The 76.2-mm gun is completely adequate and the amount of ammunition carried is amazing. The main advantage of the T-34 doubtlessly is the diesel motor. The low fuel consumption makes long marches possible (350 km with an additional fuel container). The great advantage is clear and was a decisive factor. The K.W. II was an unproblematic block of steel weighing 52 tons. But the K.W. I represented not only an enlarged type of the T-34 but always was a very dangerous and tough enemy. Strangely, this tank appeared very seldom at the end of the war, and was exchanged for the Josef-Stalin tank, a new development. This tank only reached a certain fame. Built after the principle of the "T-34", it showed many deficiencies, and was not yet fully developed. Concluding I state: The armor and the armament of the Soviet tank was only of secondary importance. Decisive was the speed and the great cruising range.

I. **Attack**

The tank is an operational attack weapon. Only at the end of the war did the Soviets acknowledge these principles. The tank force, organized in the state of defense and newly developed, could, even later, not free itself from the tactical and operative disatvantages of this development. Instead of conscious concentration and forming of strong points, decentralization and dispersion in favor of the hard fighting infantry was preferred. Much later the infantry was equipped with its own S/P tank units. The consequence of this dispersion was unusual heavy losses, because the demands of the infantry did not always correspond with tank-tactical points of view. On the other hand, an ideal cooperation between infantry and tanks developed in the course of time. The infantry belonged to the tanks like the louse to the Russian. The advantage for both parts is obvious. The stereotype attack methods are best compared with the above mentioned methods of reconnaissance. The units, formed in broad front, independently advanced in broad front. At the same time they attacked at different places. The units comprised usually 8 to 15 tanks, which corresponds to about one company, as well as mounted infantry, antitanl guns, and heavy mortars. Until the end of the war, this "pack-tactic" was most frequent and successful. It is typical for the Soviets and represents the parallel for the security-tactic of the infantry. Here too, no decision is strived for, but the enemy line is to be destroyed and unde mined as well as the defense. The attack is in the direction of the slightest resistance and enemy tanks are avoided. If the enemy main fighting line is broken through, an aim which was almost always reached due to reasons already mentioned, one advances without consideration of the flanks far into the rear areas of the enemy. Objectives of the attack are: Artillery emplacements, commanding officer's observation points, and impediments as well as demolition of the supply routes. Because we, almost never, disposed of reserves, the tanks could operate almost unharmed, facilitated by their cruising range. In the dark they moved into position in a village. The population constructed emplacements and was armed. The antitank guns now play a decisive role. At night the German leadership had to face the following situation: "Five tank-packs broke through in the sector of the corps. They are about 30-50 km in the rear area and control our only supply routes. The entire rear area is in confusion and the traffic in both directions is blocked (transport of injured). No replacements are

available for countermeasures. The Soviets develop vivid attacks on the entire front and try to advance. Ergo: Improvised attack of the rear services. Shock troops are to be formed by bakery and butcher companies and these have to attack immediately. Reports on success are to be at X hours at the corps headquarters." Did the destruction of the units, advanced in above described way, not succeed, the local withdrawal of the front was, in most cases, the only solution. This example shows again the cooperation between tanks and infantry. If a tank is stopped in attack and forced to defend itself, it loses, in most cases, its main weapon, mobility, and is degraded to a local antitank weapon. Are there, however, antitank guns available, these can take over the local protection, and the tanks are free again. Concentrated by their leaders they are in a position to force the decision in a crisis.

Attack on Villages

The Soviets depend on two prerequisites in this mthod of fighting: "Panzerschreck" with the enemy and faulty equipment with defense weapons. The assaults most of the time resemble a violent cavalry attack. Under the fire protection of the emplaced antitank guns the tanks raced into the village from at least two sides. The machine were used to full capacity and all weapons were fired. The probable percentage of hits was only of secondary importance compared to the morale effect. If this incarnation of Chingis-Khan's cavalry packs raced with elementary force in one's direction, even a brave man became afraid. A weak defender was always lost. If, however, the attacker had to face an experienced opponent, such an attack meant an attempt on an unsuitable object. The phantom disappeared after a few minutes, leaving behind numerous burning tanks, and trying the same thing at another place. Even if these attacks were made without plan, the instinctive utilization of the terrain was remarkable. In principle, terrain is utilized which is unfavorable for a tank attack, and, therefore, surpsies the defender, because his defense is concentrated on the point, favorable for a tank attack. The characteristics of the T-34 are especially advantageous. Terrain, especially unfavorable for other tanks (even light ones), i.e., bridges, swamps and deep snow, are no obstacles for it.

Night Attack

In this method of fighting, favored by the Soviets for their operations, the tank, of course, played a great role. The main force is the tank-pack. Like a miniature-unit it always consists of tanks, infantry (with mines), antitank weapons and mortars. It is an inseparably connected organic whole. Objectives of the attack are:

(a) Villages (especially in the rear area).

(b) Weak points of the front. An enemy ready for defense is not attacked and is avoided.

As to (a):

The selected victim is surrounded and put under fire from a slowly narrowing circle, until the houses catch fire. While the tremendous consumption of ammunition has the word, the undefined noise of motors and the explosions make the defender nervous. He overrates the number of the attacker and underrates his fear. If the village is burning, the tanks come as far as the light boundary and give fire protection to the infantry, advancing in intervals. If the infantry succeeds in advancing into the village, some of the tanks immediately follow. Existing resistance is extinguished from short distances and the area, in cooperation with the infantry, is cleared and secured. The main weapon in this kind of attack is the morale weapon. Continuous change of position, much going back and forth as well as incessant shouting and shooting help. The defender, who calmly awaited in his position, saying to himself: "The poor dogs have to attack, what fear they must have. I should not like to be in their place", this defender always won.

As to (b):

This method in no way differs from the daylight attack already mentioned. If the terrain is reported to be free of mines, the advance is done at night. For command and orientation reasons the tanks remain closely together. Only commanding officer's observation posts and artillery emplacements are attacked. If this is done with or without success, the Soviets try to cause panic and confusion in the rear areas. Other tanks post themselves with engines off close to the supply routes and destroy supply shipments. At daybreak they reach their own lines in the same way or take defensive positions in village or forest. The danger of these action lays in the great cruising range and the amount of ammunition carried.

Large-Scale Attack

In the same proportion as the Soviets took over the initiative, the tank as operative attack weapon gained importance. As already mentioned, the methods correspond completely to German principles. The concentration and preparation of positions took place especially at night and were well camouflaged. The use of dummies was frequent and played a great, often misleading role. In the night before the above mentioned reconnaissance, attacks were carried out. The main purpose was the clearing of mines. As soon as it became light, the tanks assembled under fire-protection on a broad front. The speed corresponded to a rolling barrage. Mostly several waves attacked. The mission of the speedily advancing first wave was the destruction of still existing antitank and machine-gun emplacements, and to advance as far as the artillery positions. The second wave followed the first one in range of sight, with the infantry. The mission was - in close cooperation with the infantry - to bring the infantry through the enemy main fighting line and deep into it. The third wave, with mounted infantry, closely followed, to start - in the right moment - in high speed, the break through and the follow-up, while parts of the second wave had to broaden the break-through on both sides. If the break-through succeeded, the third wave changed in lateral extension to pack-tactics in close cooperation with strong GA units. If the Soviets did not have to count on mines, which was often the case in our extended fronts, the tanks also attacked before the infantry. The elimination of the antitank defense through systematic artillery fire was a principal objective.

II. Defense

In the defense the tank forces were, as a rule, pack-like distributed on the whole front. After close terrain reconnaissance and commitment possibilities, they stood in direct contact with, and at the disposal of the infantry. Real counterattacks were very few. In case of alarm, the infantry was supported from previously reconnoitered fire positions. The tanks served as defense frame-work (morale) and at the same time had to prevent a retreat of their own forces. Not fully movable tanks were, well camouflaged and dug in up to the turret, in the main fighting line. Because they held fire until late, they sometimes were unpleasant surprises. Their

effect was very great and connected with high losses. In the defense of villages and towns the tanks played a decisive role. Often dug in tanks and prepared positions are used. Nevertheless, the constant mobility and continuous changing of positions is the main principle. Only is case of complete imoobility the tanks may be dug in. Against the good cooperation with the infantry must be mentioned. This is especially noticeable in house-to-house fighting. The tanks are posted behind barriers just overlooking them with their guns and are, therefore, a small target. At least three tanks at the same time protect each other, and the entrenched infantry as well as sharp-shooters represent a completely safe protection against close-range fighters. The supply of strong point and cut-off forces was out at night with tank convoys. Especially striking to the defender is the useful camouflage and the trickness of the positions. (In houses, between streetcars, under bridges, etc.).

III. Retreat

During delayed conduct of the battle and on retreat, the tank-packs are the main points of the action. The principles correspond completely to ours. Toughness, roughness and sometimes self-sacrifice (often ordered) are characteristic. Since faulty tanks are demolished on speedy retreats, the Soviets commit them usually to rear missions.

IV. Leadership and Training

The losses of the Soviet tank force were immense and the statements of the German army report were, according to my observations, correct, not considering, however, that total losses were not always correct because a great percentage could be repaired. The reasons for this are to be found in faulty leadership and wild driving. As the armament industry produced more tanks than were destroyed, replacement of personnel was not always as good. The tanks were sent directly to the front from the plant and often the crew consisted of laborers. The success, however, was in no proportion to the loss of these skilled workers. As experienced officers and NCOs were soon killed, the leadership was in the hands of young officers and NCOs. During the greatest part of the war only the command tank was equipped with radio installations. This alone caused the pack-tactic. Tanks had to be close together and follow the leader. If the tank was destroyed, the crew retreated. [illegible] leadership. Radio-

command is the basis and prerquisite for every tank-tactic. Its lack was the great handicap of the Soviets and caused great losses.

The training of the crews often was insufficient, a fact which found its expression particularly in bad shooting. Therefore, the Soviets avoided, if possible, tank battles with us. Because of the lack of individual fighters he almost exclusively depended on mass and morale effects. The technically primitive and easy to handle tank favored short- driver training. Usually, they were sent to the factories, where they worked on last assembly on their own tank. A method, which has to be designated as an ideal one and which should be applied to the whole crew.

In general, the leadership was inferior to the German, as well as that of the other branches of service. Individualism and personality was replaced by herd instincs and natural instinct. According to my opinion, initiative and responsibility were oppressed by the commissar-system. Commissars and Pilotruks were not only the soul and motor of the fight, but they resisted up to the end of the fight. If they were killed, the resistance immediately stopped.

S/P Guns

The Soviets tried to free the tank force from their commitment with the infantry, in order to assign it operative mission after the regained freedom and development of the tank force. After the German pattern S/P guns were developed and on battalion and brigade level assigned to the infantry. As the development of shock-artillery was simultaneous and was very similar to the S/P artillery, clear characteristics soon vanished. The developed types had the chassis of a T-34 or a K.V. I and the guns had a caliber of between 76.2 and 172 mm.

During the fights of 1945 many S/P guns appeared with the attaking infantry. But as, in most cases, they were committed like tanks and many were destroyed. The last development, which came to the front only shortly before the end of the war and surpassed all other S/P guns by far, was the S/P gun SU-100. Strikingly low structure, great cruising range, amazing ammunition supply and favorable drive characteristics, and a very dangerous

100-mm gun. Accuracy of fire, effective range and force of percussion make it the best S/P gun ever known to me. The German tank of type VI ("Tiger") was defeated from a distance of 1,000 m with good success. As seen from captured documents and production lists, the motorization of the Red Army progresses considerably.

E. Fight Under Peculiar Conditions

(a) Winter War

As the Soviets understand how to adapt themselves with remarkable hardness, modesty and power of resistance to the climatic conditions of their country, winter is their ally. While our locomotives froze, and the supply columns couldn't move in the deep snow, the Soviets displayed an amazing mobility. The light vehicles were placed on sledge runners and the infantry received skis and snow-shoes. Aircraft and heavy weapons as well were mounted on sledge runners. Since the front line in winter corresponded to the location of villages, and one is forced to hold on these for self-preservation, villages were, of course, the principal attack points of the Soviets. The prerequisite for all offensives was the superhuman work of the population which, brutally forced, had to keep the supply routes cleared and had to carry ammunition and fuel to the front.

The Soviets were used to these conditions and felt superior to us. Nevertheless the fast acclimatization of the German troops was surprising and often the student surpassed his teacher. That the Soviets excelled us was because we did not demand so much of the population or of our troops, which was not in accordance with our cultural conceptions. Two examples may show this: During the extremely hard winter of 1941/42 there were many casualties due to freezing on both sides. Because it could not be determined whether this happened voluntarily or involuntarily, this was a time of voluntary mutiliations. When the number of these cases increased with the troops opposite to me, the Soviets prescribed a sentence of death for freezing of limbs. Consequently, not one of those affected dared to go to the doctor but carried out his duties. I saw Soviet soldiers with completely frozen hands. They bandaged them with rags, and between the fingers of the right hand there was a nail to make them able to pull the trigger. - During the same winter the Soviets flew sabotage troops in our rear area. This was done with an obsolete slow biplane. While the air-

craft glided about 3 meters high over the snow, the occupants were simply pushed out without parachutes. Two thirds broke their necks or legs or froze to death but the remaining third carried out the mission. And that was the main point. Concluding I state: Troops, well equipped, hard trained and educated for combat in bad weather, need not fear the Soviets even in winter.

(b) Mud and Rain Period

The mud and rain periods in spring and fall are feared with good reason and, as a rule, action decreases. Because roards are generally without any firm subgrade, they must be blocked for traffic, because even a small column can make them permanently unusuable. The firm clay prevailing in the Ukraine is especially dangerous. A rainshower, lasting 5 minutes can suspend all traffic. The soil becomes soap-like and the slightest slope is insurmountable for vehicles. After heavy rains, main roads are sometimes covered with meter-high mud, so that even heavy trailers and tanks cannot move on these roads. It is understandable that the supply traffic stopped completely - no supply, no offensive. The Soviets not only made possible the impossible, they even had their greatest successes. In winter the troops were mobilized with sleighs, and the population took care of the supply. By an unbelievable improvization, ammunition and fuel were shipped to the front, mostly carried by men. I remember one case: " "living conveyer", 30 km long, stretched cross-country. While our leadership was helpless and our guns were silent, because of lack of ammunition, enemy tanks broke through our line, pulling infantry-sleighs and forced the defender to retreat. It takes no imagination to see what has to be left behind under these circumstances. The Germany Army started these mud and rain periods without ant preparatory measures taken, because time was always short, one was too optimistic and the good weather had to be taken advantage of. The development showed that the speed of attack and the construction of a road system in Russia has to go hand in hand.

This study is made neither under the impression of the "Kussenschreck" nor the defeat. It is an attempt of a factual, resonable representation from the front point of view. Even the Soviets are not super-human. I referred to the guards units by pointing out their characteristics. The mass were inferior and were effective only by reason of being there and having numerical superiority.

Part 2.

German Tank Tactics in the East.

Prefatory Note:

As I presume that the reader will be familiar with the pertinent German regulations as well as the organization of the German tank divisions, I shall, therefore, deal with those issues which were characteristic of the Russian Theater of war.

The events in the following described took place in the wide level tract of the Ukraine and Southern Russia as far as the Don River. This study refers to the culminating point of the combat action. It does not mention the first two years of war during which time the Russians were absolutely inferior to the Germans regarding armament and experience.

Synopsis:

The German tanks proved excellent and, during the whole war, no tanks of equal qualities appeared at any front. "Panther", Tiger" and "Koenigstiger" were highly manoeuverable and had superior armor and armament. Not the design but the difficulties in the procurement of material and substitutes was reason for many technical deficiencies.

As the present development apparently made antitank guns superior to tanks, two separate problems and lines of development arise regarding the armored command:

(a) A heavy tank with strong armor and a long-range gun which is systematically to fight down the enemy antitank defense.

(b) A medium tank which is to be an offensive weapon with high speed and large cruising radius and lesser armor and armament.

"Panther" and "Tiger" tanks already had these qualitites. In my opinion their weight is the absolute limit, for a further increase of weight would no longer maintain the balance between advantages and disadvantages.

Normally my regiment would consist of two battalions equipped with tanks "4" and "Panther" tanks respectively. At the end of the war I commanded one mixed battalion (2 tank "4" companies and 2 "Panther" companies), and one "Koenigstiger" battalion. Regarding the variety of combat missions and the different manoeuverability of the tank types this composition was an extremely bad one. On the basis of my experience in tak warfare I expressly recommended the following compositions of a tank regiment being an organic unit of tank divisions;

Two medium "Panther" (tank"4") battalions.

One armored in antry battalion (mounted on armored personnel carriers).

The "Tiger" battalion being a unit to be committed in the point of main effort, should be assigned to the Corps. In all combat missions the tank regiment cannot do without infantry. Once tank and infantry troops are components of one battalion, cooperation and, first of all, the feeling of solidarity are essentially better. On the other hand, it was experienced that an infantry regiment which again and again had to detach one and the same infantry battalion to the tank regiment is losing interest in the battalion concerned. The battalion suffers under these circumstances and its CO falls between two stools. A tank regiment which includes an infantry battalion as an organic component is most suitable for all combat missions.

My regiment destroyed about 1,500 enemy tanks and lost about 500 of its vehicles. Out of these 500 vehicles, 15 % were destroyed by enemy tanks, 35 % by enemy tantitank guns and antitank mines and 50 % were blown up by ourselves for various reasons. My regiment, according to a rough estimate destroyed about 4 times as many enemy antitank guns as enemy tanks. The number of casualties among our tank crews was surprisingly low.

Both the transmission of orders by radio and the fact that we were always in the offensive were the decisive prerequisits for successful actions, ever when being in the defensive against an enemy greatly superior in number. Success was achieved only because all officers - the regimental commander down to the youngest lieutenant- stayed and fought in the tanks.

We always felt superior to the Russians, a fact held up our morale and bearing until the End.

The best weapon should be manned by the best men.

The armored command, therefore, should be an elite force of volunteers only. Only most careful picked and tested men will come up to greatest achievements.

Since we could never compete with the numerical superiority of the Russians, it was our problem to train highly wualified specialists. The training was done by continuous courses conducted in the rear of the front. Experiences made at the front were evaluated immediately. Only the most qualified officers and non-commissioned officers were appointed instructors. Overruling all arguments I used to send to the rear soldiers who particularly distinguished themselves. Such men, remaining at the front, would be seized by an efficiency complex and, venturing too much, would soon be killed.

Sand table exercises, radio-map exercises and radio-command post exercises were the most valuable means of instruction during the aforementions courses. If there was time to spare before important actions, I even trained my officers by building sand models of the combat areas concerned and exercising the planned attack in all details.

A highly wualified tank crew has to excel in:

(a) Marks-manship

(b) Quick reception and correct execution of all orders transmitted by radio

(c) Driving well and considerably.

Even at the front the tank crews constantly underwent such training.

On par. (a):

Improvised target ranges, range estimation and continuous firing practice with the turret machine guns which was coaxially mounted with the tank gun. In other words: the gun was layed and the machine gun was discharged - a useful and inexpensive method.

On par. (b):

Tactical instruction was exclusively done by radio voice transmission. The radiotelephones were dismantled and placed at the sand tables, in the terrain, or mounted on vehicles.

On par (c):

Tank drivers were, if possible, sent as test drivers to the tank plants and to repair shop companies in order to complete their technical skill. Experience proved that technical

knowledge alone which is of decisive importance. The tank driver also has to see, estimate and utilize the terrain. A this qualified tank driver will often save a tank from destruction.

In combat the infantryman runs or lays down. The same applies to a much greater extent to the tank which essentially more attracts the enemy fire. Therefore, a tank has the alternative either to go full speed or to cover from view. The driver has to keep looking for possibilities to cover from view. He even has to develope a sense for each lump in the ground and each hollow. "Jumping" from one cover to the other the tank is not easily to be destroyed. A good driver should be an expert in utilizing the terrain. This is even more important than to drive the tank for 5,000 km without disturbances. My most efficient tank commanders have been drivers before. The most successful one, who also distinguished himself most in the whole army, destroyed about 150 heavy enemy tanks; a surprising performance, which emphasizes the value of experienced specialists.

The tank crew is living under a common fate. They must not only have confidence in their weapon but they also must love it. I used to hold a little ceremony of a crew was to be assigned to a new tank.

Each member of the crew signed a document, pledging himself rather to die before allowing the enemy to capture "his" undamaged tanks. This measure surprisingly raised the morale and the feeling for solidarity.

The tank crews did not only regard themselves as soldiers but also as trustees of property of the German people. Even in Russia, damaged tanks very often had to be left in the enemy rear during attacks. The crew always stayed with their tanks and had to defend it until the end.

Under such circumstances, a single "Tiger" tank which had been damaged by an antitank mine and was unable to move, destroyed 27 attacking "T34" tanks by firing 30 rounds of ammunition within a few minutes, the last one from a distance of 4 m. In the long run, success depends on soldiers with firm character more than on soldiers with a high degree of training.

A. Attack.

When attacking an enemy who is ready for defense, careful planning is necessary. There was no attack by my division which - when carefully prepared - did not lead to success. In the East we usually moved into assembly position and attacked at dawn.

In the attack, the tank regiment formed the center of gravity and therefore, would choose the terrain.

Usually, one armored infantry battalion and one self-propelled artillery battalion were placed under my command. With the break-through accomplished, the two battalions disengaged from the main body and formed the direct pressure element.

The attack was carried out according to the usual rules:

1 - first tank wave was formed by heaviest tanks which were to destroy or neutralize the enemy antitank defense,

2 - the second wave followed about 500 m behind, protecting the leading tanks against close-combat infantry. Simultaneously advancing self-propelled antiaircraft guns effectively fought infantry targets. The companies of the armored infantry battalion advanced with the second wave. All elements of the attack waves closely cooperated in holding the enemy trench system under permanent fire and this allowing the own infantry to follow up and to clear trenches and foxholes.

In order to prevent separation by any further resistance, the speed of the tanks had to conform with the infantry. The tank crew fought with high-explosive shells and machine guns, the tank commander with hand grenades and submachine gun. The tank commander, in order to direct his tank, had to look out of the turret hatch despite he was liable to be hit.

Owing to the noise of the tank engines voice-communication with the infantry was extremely difficult. Radio communication could not be applied since the tank radio operators were fully absorbed in the radio traffic of their own tank unit. The tanks could most rapidly direct their fire against ground targets if the infantry indicated the direction of the target by means of a signal pistol. In smoke screens, the tanks needed a close-in protection of infantry mounted on tanks.

The Russians were very easily irritated by smoke screens. The combination of tank and armored infantry units proved extremely successful. Technique and morale were excellent if combats teams remained together. Pursuit was done in accordance with the usual rules. It had to be continued by all means, even at night.

I. Tank against Tank.

As, on the German as well as on the Russian side, tanks were the decisive means of combat, the Germans used tanks in the points of main effort, whether tank duels or tank battles were concerned (e.g., in the summer offensive of BYELGOROD where both the Germans and the Russians concentrated 1,500 tanks in a small area). The characteristic difference in the manner of fighting was that we used brains and the Russians accelerator pedals. Disregarding any numerical superiority of the Russians, we always aimed at flank attacks, if possible from both sides, with only weak forces containing the enemy in the front.

The battalion commander or, at least, the company commander determined the range, designated and allocated the targets and ordered the commencement of fire, usually a salve of surprise fire, which always proved a great success. Several enemy tanks were destroyed at the same time and the enemy withdrew panic-stricken. The subsequent pursuit caused heavy losses to the enemy.

In combat against moving targets, it was unwise if each tank choose its own target. Experience proved that sudden concentrated fire of only few rounds of ammunition was most suitable to achieve the end in view. But fire control was necessary as examplified in the following: Order of a platoon leader: "1100 hours - 900 - 3 enemy tanks moving parallel to front - prepare surprise fire of three rounds by each tank". Upon report of the tanks, the platoon leader ordered "fire" and each tank fired three rounds.

Advantages: (a) The target is destroyed at one with certainty.

(b) Ammunition is saved.

(c) The enemy morale is affected immensely.

Before firing for effect at an enemy at long distance, the commanding officer determines the range by trial fire. The Russians, being superior in number, used to charge like cavalry, firing all guns.

Since such a charge greatly affects the morale of those being attacked, those in the defensive have to know that "who runs away is going to die", whether it is tanks or infantry. The defenders who did not lose their nerves and immediately moved into position were superior to the headless onslaught. In such a case tank drivers being efficient and skilful in the utilization of the terrain were of great importance. A salient factor in the defense against such charges, even of an enemy greatly superior in number, was to intercept with weak forces the attack in the front and simultaneously to close in on the flanks. The Russian impetuosity usually resulted in close combat. They often even tried to ram. It also happened that tanks of both sides passed each other at closest distance, reversed their turrets and fired over the rear. Sometimes the Russians used smoke candles which, developing the typical black Diesel smoke, were to simulate the bruning of tanks. Then they suddenly reopened fire.

Therefore, each enemy tank had to be fought until ablaze, even if it had already been put out of action. Owing to our superiority regarding leadership and material we always had the initiative in tank battles. The Russians were immensly afraid of the "Tiger" tanks. Camoufalge painting was of special importance. We not only painted our tanks according to the seasons but also to the colors prevailing in the terrain concerned.

The Russian tanks arrived directly from the factories with no camouflage painting at all. Being black and prominent targets, the Russian tankswere easily spotted and sighted at.

II. Tank against Antitank gun.

I already mentioned the decisive role the Russian antitank guns played. The fight against antitank guns was a daily problem to us. Although the layman may believe that it is more difficult to destroy tanks than antitank guns, a tank crew will know that the fight against an antitank guns is the hardest.

Characteristics of Russian antitank tactics:

(a) All guns were dug in up to the barrel.

(b) Excellent camouflage.

(c) Commencement of fire at shortest distance only.

(d) Guns could be traversed by 360°.

(e) Elevated position preferred.

German countermeasures:

(a) Careful examination of the terrain by field glasses.

(b) Advance only under the covering fire of part of the force.

(c) Expoitation of the greater range of our guns.

(d) Concentrated fire of several tanks.

(e) Employment of high-angle weapons (mortars and heavy infantry guns).

It ought to be the mission of artillery or air forces to fight a concentrated antitank defense as well as individual antitank guns. As we seldom had such support tanks only were successful if their crews were willing to sacrifice themselves. This method, however, incurred very heavy losses so that the attack could not be continued. My regiment destroyed the greates number of antitank guns. To fight antitank guns, we applied two tactics which I should like to designate as follows:

1. The German or methodical tactics.

2. The Russian tactics in German version.

On par. 1:

The tank unit, advancing in line formation, from time to time stoped in order to observe. Such stops were only made in favorable terrain, mostly in reverse-slope positions. The foreground was systematically scrutinized by all tank commanders. Any spotted targets were destroyed by sudden concentration of fire by platoon or company. Reverse-slope positions were preferred as they increased the effective range or our guns. The stereoscopic telescopes with which we were equipped, were of special importance.

On par. 2.: The tanks were formed to attacking groups and firing groups. The firing group consisted of heaviest tanks. These, firing all guns, raced towards the targets and rolled over the antitank guns positions. The firing of machine guns was of immense importance in this action. All other tanks provided protective fire. This tactics was very risky and called for very courageous tank crews. It possibly could turn out badly especially if the antitank guns were protcted by a cordon of antitank mines as close-in protection. This tactics, however, greatly affected the morale of the defenders. A few figures will explain the mass engagement of Russian antitank-guns. Once we destroyed 52 heavy antitank guns, employed in an area about 300 by 300 m, which were to protect the highway north of SHITOMIR. During an attack north of SHITOMIR we destroyed 128 anti-tank guns when breaking through the lines of 6 Russian divisions. Taking the "Grau" bridgehead, - in spring 1945 - my regiment destroyed more than 400 heavy antitank guns and guns within four days. Only 7 out of the about 50 tanks of my regiment were not damaged.

III. Tanks against Infantry.

The shortage in ammunition prevented us from firing at each foxhole. As we did not very much affect the Russian infantry which was dug in and excellently camouflaged, we restricted our fire to the support of our own infantry. The Russians in the fire-trenches were kept down by machine gun fire, so that armored infantry could advance, which in turn paved the way for the following infantry. A difficult and dangerous mission always was the fighting of the numerous antitank rifles. On the heavy Russian ground, it was risky to roll over foxholes, trenches and dougouts as the tanks were liable to sink in. A tank deprived of its manoeuverability easily falls a prey to daring defenders. The Russian "Molotov cocktails" and antitank hand grenades were hardly effective because of our system of mutual surveillance. Neither at the Eastern nor at the Western front, my regiment lost a tank on a count of close-combat munitions. Once the enemy gave up his position and withdrew no one escaped the pursuing tanks and especially the armored personnel carriers.

IV. Tanks against Artillery.

In the East - contrary to the West - there was no artillery fire through which we were not able to pass easily. Concentrated German artillery fire always dispersed the Russian tanks or forced them to withdraw. The enemy never was able to do so. It was our principle to pass under artillery fire of the enemy with wide-open throttles. If

caught by artillery fire during an engagement, our tanks evaded their fire by maneuvering back and forth. Prerequisite: Exact transmission of orders by radio/elastic change of formation.

In case our tanks broke through as far as to the firing positions of the enemy artillery they fought against guns like against anti-tank guns.

V. Antitank mines and antitank ditches.

When attacking an enemy ready for defense, antitank mines and antitank ditches had to ve expected at all times. Therefore, infantry and engineers had to advance before or together with the tanks. If we met with antitank mines and ditches while advancing alone, we applied the following methods:

(a) Small mine fields were marked and bypassed.

(b) If a large mines field or antitank ditches blocked the advance, all tanks were immediately informed by radio, stopped and cautiously withdrew.

It was fundamentally wrong to stop in front of such mine obstacles since they were protected usually by antitank guns, tanks or artillery. In such instances the tanks withdrew and effort was made to reconnoiter the terrain for a bypassing way. The loss of time was always worthwhile. Only if there was no other possibility, lanes had to be cleared across the mine field. Special tanks were ordered to support the working armored engineers. If the advance was continued light tanks led with all other tanks following their tracks. This way only light tanks could strike a mine. Thus a lot of material was saved. In conclusion it may be stated that the Russian mines had little effect. They were, however, dangerous because they could not by located by mine detectors and because they were protected by antitank guns.

Pursuit.

The principles of pursuit corresponded to the usual rules. Direct pressure elements first included tanks and secondly motorized infantry. The armored group comprised all armored components of the division, with the exception of self-propelled guns which had to stay with and support the infantry. Furthermore a reconnaissance battalion was attached to my regiment in the case of large-scale actions.

The groups were named according to the mission concerned: either armored group, direct pressure group or combat group. Compensation of all branches of service was important for successful operations. No definite targets were indicated but resulted from the development of the action. The commanders at higher headquarters made their decisions according to the situation reports by the armored group. Decisive results and destruction of the enemy could be reached only by continuous pursuit, disregarding time or weather. The Russian commissars often manges to stop stampeding troops and to reorganize them into an improvised resistance, in surprisingly little time. Owing to the fact that German troops always discontinued pursuit at nightfall, the Russians, according to their own statemments, often escaped disaster. I my unit was assigned to pursuit missions it was always sucessful within the limit of gasoline and ammunition. Usually our own infantry could not follow up so that my unit was repeatedly cut off. (e.g., commitment in the Eifel Mts.) Therefore, the speed of the pursuit group had to conform to that of the infantry following behind. If possible, I separated some tanks, which were in radio contact with us and had the mission to protect the supply vehicles, by applying the convoy system. If we discontinued the pursuit, we immediately took up defense, positions, i.e. all-around defense. The tanks had to be withdrawn for a technical check. In spite of the arguments of the infantry it was unwise to leave them in the defense position day and night. The Russian method of cooperation between tanks and antitank guns was essentially better.

Tanks conquer the terrain and antitank guns hold it, This method not only provided for the emplyment of the right weapon in the right place but also increased the physical fitness of the tank crews and saved material.

C. Night attack.

Night attacks of tanks were not even discussed for a long time. During the winter of 1942-1943 I conducted some successful attacks at night and was at once marked an "expert". This reputation never let me get a rest. Tank attacks at night are only to be conducted in exceptional cases and must not be made a rule. The following issues are prerequisite for night attacks:

1. Suitable terrain.

2. At least three quarter moon in summer and three quarter moon at the most in winter.

3. The enemy must not be ready for defense,

4. The attacking force must be an organic unit of tanks and armored infantry (battalion on armored personnel carriers).

The morale effect caused by the noise of the flat-trajectory shells and peculiar roar of engines and chains at night, was decisive in all night attacks. In other words, the tank paralyses the enemy morally and the armored infantry meanwhile rushes in for clos-comb t. A salient factor for the preparations of a night attack was that all soldiers intensively studied the maps. The flatness of the country makes orientation very difficult, even when using a gyro-compass. It was necessary to cover up the exhaust opening in order to prevent the dashing of burning gas, because thos little flames in the tank's rear are prominent points of aim to the enemy antitank guns

Usually we had the following missions:

1. Counterattacks in order to regain lost positions.

2. Harrassing attacks into the enemy rear area after which we retreated immediately.

3. Attacking of so heavily occupied localities that they could not be attacked in daytime.

On par. 1.

In a local attack was directed against new positions we advanced, extended in width, with the first moon. Our infantry either mounted the tanks or followed behind. If the enemy opened the fire we speedily advanced, firing all guns. Upon arriving at the trenches and pockets of resistance, infantry cleared them out while the tanks took up limited pursuit. In these cases the Russians easily gave way, so that our casualties were surprsingly low. Again, the most difficult problem was to fight the enemy antitank guns. As the Russian antitank gunners heard the noise of the advancing tanks very soon they had time for preparation and, knowing the terrain and ranges concerned, they were superior to the tanks. The tank is not able to destroy the antitank gun by high explosive shells for the following reasons:

(a) The tank gunner is blinded by the muzzle flash of the antitank guns.

(b) The tank commander cannot determine the range.

(c) It is to dark to aim despite the illuminated telescopic sight.

We successfully applied the following methods:

1. Concentrated fire of machine guns by nearby tanks. More distant tanks stopped their engines and fired high-explosive shells. Meanwhile armored infantry bypassed the enemy antitank gun positions and attacked from the flank.

2. The Russian antitank gunners were blinded by pyrotechnics and subjected to permanent machine gun fire by one tank, while the other tanks, coming from another direction, overrun the antitank guns.

3. Employment of improvised search lights compiled with tank guns. Though being rather primitive, the searchlights proved very successful, all the more as a searchlight is hard to hit. This method, however, requires team-work of tanks. If we had the mission to take back a place just conquered by the enemy, we used the Russian method.

We had to deceive the enemy as we were not able to surprise.

(a) Massed tanks formed clearly discanible targets which absorbed the enemy's attention. Meanwhile own armored infantry (on armored personnel carriers) attacked from the other side. Firing all guns they rushed through the locality concerned leaving it at the other end. The houses were put ablaze by flame throwers and soldering lamps. Tanks exploited the panic and, firing all guns and machine guns, penetrated the place under the support of infantry.

(b) Employment of loud speaker trucks which played records reproducing the noise of tanks in order to deceive and harass the enemy.

(c) Diverting of the enemy's attention by a sudden concentration of artillery fire, which simultaneously drowned the noise of any advancing tanks. Was the mission fulfilled, the tanks withdrew and antitank guns advanced.

On par 2,i

Supply bases, important roads and artillery emplacements were attacked. Also in these cases the Russian method can be rather effectively applied. The Russians excellently protected their rear area. Therefore, we had to bypass localities, remaining out of range of the enemy antitank guns. We never moved along roads but always went cross-country. We always fired some preventive shells if we approached underpasses, bridges, etc.

We were very successful when, being unnoticed by the enemy, we got into line with enemy columns. This way, the Russians never cared about us and we could drop pretence at the right moment. (Once we had to leave behind one "Tiger" tank dur to radiator defect. During the night, the tank joined a Russian infantry column for about 40 km, and Russian soldiers even carried more than 400 gallons of water to refill the tank. The following morning the tank rejoined our unit. (No one of the crew spoke Russian!))

Cooperation with the Air Force proved very successfull to improve orientation in the terrain. Individual aircraft marked roads and targets by parachute-flares. Thereby the enemy was blinded and deceived by the noise of the aircraft, a fact which was of great importance.

On par. 3.:

Such attacks I conducted only at the end of the war, at normal times I would have refused to do so. Failure or success depend on the most trifling incidents. In any case, night attacks are conducted only in emergencies, if an attack in daytime appears hopeless because of both the enemy's superiority in number and the disadvantageous situation of the own troops.

While mopping up the "Grau" bridgehead in the spring of 1945, I attacked three villages in three subsequent nights. The villages had been the last strongholds of the Russian; they were very well protected and fanatically defended. (Incidentally, the Russian commanders were by radio continuously threatened with capital punishments in case they surrendered these places.)

Furthermore, the foreground of the villages was densely occupied by infantry with mines and numerous dug in flame throwers. Enemy artillery, being employed on top of a hill, commanded the area to such an extent that we could not move during daytime. As our infantry was totally exhausted and needed, tank support, at least, to bolster up their morale. I decided to participate in this action, against all reason and tank tactics. These were the most important preparations:

(a) Painstackingly correct information on the terrain.

(b) Allocation of small hills as firing positions for the tank companies.

(c) Surveying of all distances and drawing of target sketches for concentrated fire by tanks at night.

(d) Thorough understanding with the infantry.

Together with the infantry about 40 tanks of my unit launched at the attack at half-moon. The tanks quickly separated from the infantry and moved to the firing positions allocated the day before. The tank opened up with concentrated fire, using only as much ammunition as ordered before. Meanwhile the infantrymen arrived at the tanks, and together we penetrated the enemy positions. After short close-combat fighting, the enemy stampeded to the village. When pursuing the enemy, 50% of my tanks hit upon mines. With the remaining tanks I advanced amongst the retreating Russians, thus running under the enemy barrage fire which was opened instantly. We were separated from our infantry which was forced to dig in. (The terrain was flooded by 20 cm of water.) With five tanks I succeeded in penetrating the village together with the retreating Russian infantry. The enemy took to flight. Four hours later we were relieved by our own infantry. My unit suffered no casualties regarding personnel; only one tank was destroyed and 28 tanks were damaged by mines but could be repaired within two days. Our two infantry regiments suffered about 600 casualties. The attacks during the following nights were similar and under similar circumstances.

Experiences: At night, direct tank fire is more effective than during daytime. Even the Russians are losing their nerves.

2. The attack of tanks and infantry has to be launched from two different directions, as the defensive fire concentrates upon the tanks and causes too heavy losses among the infantry. The tanks, for their own protection, have to be accompanied by infantry on armored personnel carriers.

3. The main effect of the tanks: (a) The mere fact of their presence. (b) Deception of the enemy concerning their strength by constant evading movements. (c) The roar of the tank engines. (d) Concentrated fire in salvos according to plan (up to 10 extra boxes with shells were mounted on the rear).

4. Infantry has to penetrated the enemy positions ahead of the tanks otherwise it would imply suicide. To summarize it can be stated: Night attacks of tanks are the last and highest test. Success depends on both cooperation between armored infantry and tanks and on painstaking preparations. Success can be surprisingly great with surprisingly small losses. Tanks attacking at night must closely cooperate with aircraft.

B. Defense.

Due to immensely extended fronts and the numerical superiority of the enemy, the German lines could only be held by applying offensive defense. If we kept absorbing the enemy's attention, the enemy could not put into effect his plans for attacks. Also in the defense, the tank was one of the most important weapons and always had to be kept in the rear, ready for action. It always was the desire of the infantry to equally distribute the tanks in the rear of the defensive sector. This should never be done. Who wants to protect everything, does not protect anything. In order to protect a position, the following methods were used:

1. Antitank gun nests were dug in the main defensive area according to the Russian pattern.

2. Self-propelled guns were concentrated at and placed at the disposal of the command posts of infantry regiments.

3. The tanks were assembled in a village or woods in the immediate rear of areas which were suitable for enemy tank attacks. One group of these tanks was alternately alerted to come to the aid of the infantry at once. The tank crews stayed in their tanks, the engines were kept warm, and the tank commanders maintained constant telephone contact with the infantry command posts concerned. The principle mission of such employment was: (a) To repel enemy tank attacks. (b) To attack immediately any enemy troops who penetrated the lines of the own infantry.

Prerequisite for such missions were a close contact with the infantry and current information on both the terrain and enemy movements. All officers and tank commanders had to walk through the defensive sector before and had to be able to find their way while sleeping. (During very dark nights, the way was marked with paper.) Furthermore, tank emplacements/built within the main defensive area. were

We used to dig up holes in reverse slopes from which only turret and gun of tanks, which moved in, projected. The tank commanders also had to be familiar with the positions of adjacent troops. If there was enough time (even if there were only two days) a sand model of the terrain concerned was improvised, on which the tank commanders received thorough instruction.

Counterattack.

If the enemy attacked, all tanks had to be ready for action within five minutes. The commanding officer of the alerted tank group drove to the command post of the infantry commander, observed the development of the situation and was in current radio contact with this unit. When Russian tanks advanced, the alerted group took up the prepared psitions and frontally stopped the attack. The commanding positions on reverse slopes were always the reason for initial success. After the initial shock, the enemy was contained in the front and annihilated from the flanks. Usually the Russian furiously drove headlon into our lines, and thus into destruction. During the summer offensive of BYELGOROD (1943) the enemy, advancing in a width of about 800m, ove run our infantry which had dug in on a hill.

I had an under-strength tank battalion waiting on a reverse slope. Our tanks allowed the enemy tanks to approach closely and destroyed them from a distance of 200 down to 10 m. Together with infantry we destroyed all 169 Russian tanks (24 of them in close combat). If the enmy took to flight, he was pursued up to a limited depth, the mine fields in front of our own lines permitting.

To take countermeasures against Russian infantry penetrating during daytime was no problem at all. In such cases, it was only essential to "be in time", a matter of thorough organization. The measures taken during night attacks were corresponding: if the Russians knew that we disposed of tanks they would only attack with infantry. The morale effect of a tank counterattack was surprisingly high, on the part of the offensive as well as of the defensive forces. Once the infantry acrually gains confidence in "their" tanks and is never disappointed, the infantry will always hold their positions until supporting tanks arrive. Ground signals blinded us and reduced aour fighting power. The infantry, therefore, had to be instructed regarding tank tactics.

The counterattack was always a question of time. An immediate counterattack always had its affect on the Russians. In the defense of a village, our tactics were similar to the Russian tactics. Half of the success depended on a thorough study of all possibilities arising in combat, this excluding momants of surprise.

Usually nothing could go wrong, if all tank crews were familiar with the terrain and had walked through the area before. We had the following principles:

(a) The stand-by positions of tanks depended on the terrain and the given conditions regarding cover. The tanks stayed together in companies at least.

(b) Commanding officers of tank and infantry units were located in one command post.

(c) Plans were worked our for alerts during both day and night.

(d) Protecting tanks were placed at endangered points (if there was enough time tanks were dug in). The positions occupied in daytime varied from those occupied at night. All tanks were connected by telephone.

(e) In emergencies at night, tanks fought outside of villages. If possible, the enemy was taken in the falnk by concentrated counterattacks. Tanks in a burning village were immensely handicapped. (Fire-flashes, smoke, scintillation, silhouettes) A tank being used as stationary anti tank gun, lost half of its value by being not able to move. Towns were defended according to the Russian pattern. Effort was always made to keep the tanks together. Tanks should not be separated and attached to infantry units. Sometimes it was harder to convince the superior infantry commander than to fight the enemy.

E. Combat Team.

During the lasttwo years of the war, increasing importance was attributed to the combat team, consisting of at least one tank battalion which - supported by other weapons - was able to fight independently.

Like expeditioning elements, combat teams were sent ahead or left behind. They were of particular importance during offensive defense and withdrawals. The tank divisions, on account of thier equipment and organization, were first to develop such combat teams. Some capable officers oon became outstanding combat team commanders. This development, however, improvised at first to increase fighting power, eventually disrupted the integrity of the "army machine". The combat team commanders like the way of independent fighting and the absence of interferring superios. Such officers not only were wholly independent but eventually took the conduct of operations into their own hands so that division commanders often had to conform to such ambitious "young men". The armored element of the tank division - in this case also called combat team - included all armored vehicles with the exception of self-propelled guns. The armored weapons were reinforced by artilery units (75 mm and 105 mm guns on self-propelled mounts.) Furthermore, the high-angle weapons of the armored infantry battalions have to mentioned (heavy 150 mm self-propelled infantry guns, called "Grille" and mortars mounted on armored personnel carrier

The enmy was very much afraid of the "Grille". In spite of the fact that the time during which I commanded a combat team in numerous engagements was the most independent and satisfactory one of my whole career as a soldier, and despite the fact that we were surprisingly successfulover against rudiculous small losses, I do decline the combat team as a standard unit and recommend its employement in cases of emergency only. The combat team was a typical feature of warfare in the East, where it was not the technique and material that mattered but the initiative of the individual. Yet, there is no doubt about the fact that it were the combat teams of the tank divisions which prevented an early breakdown in Russia.

F. Withdrawal.

A prolonged and regular withdrawal is the most difficult way of fighting since it obliges the troops to the greates extent of self-sacrifice, morale, and discipline and necessarily results in the destruction of the tanke force. The continuous German withdrawal revealed an unprecedented lack in responsibility and decision. The German High Command, which arbitrarily removed and replaced commanding officers, felt surrounded by an atmosphere of distrust and uncertainty and had to make decisions on the basis of fabricated and false reports. The conduct of war, originally based on science and tradition, become an improvisation which, in the end, was just a cover name for "incapability". The purpose of a withdrawal is to gain time.

As Russian tanks were the principle weapons of pursuit, our rear guards had to formed by tanks, too. This meant a dissipation and finally the desiintragiation of our tank force.

Rear Guard.

Usually, our rear guards were formed by small armored groups, supported by engineers equipped with mines. In order to enable the infantry to take up new positions, the rear guards almost exclusively had to sacrifice themselves in such missions. Long-range firing and retreat in pahses characterized such actions. Damaged or unserviceable tanks were salvaged by wrecker platoons. If the retreat took longer than three days, the salvage of such tanks was no longer possible. The crews of damaged tanks had to fight until the last moment and then to blow up their tanks, having removed optics and arms. Tanks salvaged by wrecker platoons often did not arrive at the repair shops, because the whole hinterland was in motion, too. Effort was made to maintain constant radio contact with the repair shop companies.

During the retreat in Hungaria, my unit often towed up to 60 damaged tanks which, however, had to be blown up sooner or later. The Russian always followed in the direction of the weakest resistance. Seldom the Russionas fought our rear guards, they rather bypassed, so that we were quickly cut off. In spring 1945, I drove for three days in the midst of a Russian supply column, right behind their direct pressure detachment, always trying to reach my division. Evasive movements essentially have to conform to the terrain. If, due to the lack of responsibility and for reasons of prestige, the retreat is limited to only few meters daily, it is impossible to contain the enemy from out new positions, and the retreat soon turns a stampede. Counterattack is necessary in order to disengage from the enemy without being noticed. Only local success enabled our infantry to dig in again.

The counterattack.

The prinsiple:"If once is to weak for defense, one has to attack" proved true and saved us in numerous cases (e.g. the "Eiffel" offensive which was conducted to gain time.) In pursuit, the Russians were always extremely careful, even when being greatly successful. If Russian direct pressure detachments were stopped, they immediately dug in. Innumerable antitank guns came to the front lines erecting an insurmountable wall behind which the tanks returned. The Russian protection against back-storkes and their method of not to overstrain their armored units during pursuit, was absolutely outstanding. Therefore, we had to resort to counter-attacks which took the enemy by surprise. If our counterattack hit the moving enemy from an unexpected direction, it could be of decisive importance. A classic example was the battle of KHARKOV in Jan 1943. After we had reconquered the town by throwing in all available troops, the Russians, coming from the East, launched a counterattack of a whole tank army. As a defense seemed to be absolutely hopeless, the German command decided to launch a counterattack. My armored group succeeded to overrun the Russian advance elements, to drive through seven Russian divisions and to take the town of BYELGOROD which was located 80 km to the rear (without loosing one man).

The enemy was completely taken by surprise, lost his head and his counterattack tunred into an irregulat withdrawal. At the end of the war, the Russians never attacked without being supported by tanks. If we succeeded in destroying these tanks, our own troops had enough time to take up new positions. In spring 1945, I managed to destroy - at such an assignment - with only 24 tanks 148 "Joseph Stalin" tanks within one day. This did not only delay the large-scale offensive for VIENNA, but also prevented my army from being surrounded. Summarising, the following can be stated: Our counter-attacks were lead by armored advance elements. The aim was to annihilate the resisting enemy can a. Full success was secured if the moving enemy could be taken by surprise. The enemy infantry -

at such occasions - never managed to take up regular defense positions.

G. Winter-War.

Since, in winter, the Russians did not go over to position warfare but doubled their efforts to keep moving, we were forced to revise our tactics. If one wanted to remain master of the situation, one had to break all traditional rules and had to fight the Russians by applying methods of their own. The Russian winter offensives constituted part of their psychological warfare. In commemoration of the war against Napoleon, the Russians exploited the conditions of the terrain, the nature of thier country and the weather, thus giving their actions a nimbus of fright, horror and superhuman qualitites. There is no doubt, this mystery deeply affected the German soldiers. Intensified training and constans appeals to efficiency and the feeling of superiority had to make the German soldier fit.

It became our practice to train soldiers for combat in bad weather. If the enemy appeared under protection of darkness in a light rain, we appeared during pitch-dark nights when it was raining like hell. If the enemy attacked when it was snowing, we attacked during snow storms. In other words: If, one wanted to maintain oneself and even be successful, the self-confidence and morale of the troops had to be increased by demanding extreme achievements from them. Issues relating to technique and supply were our main problems. Almost all our assignments were to take or hold localities. Our methods of fighting corresponds to those of the Russians. It was my principle to attack in extremely bad weather, thus taking the enemy by surprise. We were very successful this way and terrified the Russians. The disadvantages by the continuous Eastwind were balanced by the advantages during our attacks:

(a) Disadvantages:

Extremely bad sight; injuries by freezing; icing of optics and protectoscopes.

(b) Advantages:

1. The enemy did not hear the noise of the tanks so that we were able to appear by surprise; no reduction of visibility because of muzzle-blast smoke.

The last issue is most important, since it greatly increased the rate of fire. In case of tank tuels, the Russians were hindered by their own muzzle-blast smoke which condensed in front of thier tanks.

In case of long-range weapons duel, it was essential to take up positions where the snow was frozen or vlown away by the wind so that, when firing, no snow clouds were kicked up and unmasked the position of the tank. Due to good visibility, night attacks during winter time proved ideal. During all four winters in Russian the snow conditions,apart from snow drifts, were no obstacles for our tanks. The German planning did provide shelter for repair shop installations. Repair shop personnel were often forced to work in the open for 24 hours a day. At least they should be provided with tents. Summarizing, the following is stated: For our winter warfare we had to toughen our troops and to accustom them to the rough Russian climate. Onee our troops got accustomed and realized that the Russiand were only human beings who suffered from cold as much as we did, they were no longer afraid during the winter. The same applied for the "mud and rain" season.

H. The most dangerous enemy weapons.

1. Tanks: "T34" "I", "Josef Staline", SU-100" Sp guns, heavy antitank guns of 76.2 mm caliber.

2. Antitank guns, medium antitank guns of 38 mm caliber with conical barrels.

3. Wooden box mines.

4. Antitank rifles.

5. Heavy mortars of 132 mm caliber.

6. Explosive ammunition for infantry rifles and machine guns.

I. DEficiencies of our tanks.

Our tanks suffered from the following defeciencies, necessitating the following improvements:

1. Greater cruising radius.

2. Better sighting mechanisms and range finders.

3. Smokeless powder.

4. Searchlights coupled to guns.

5. Tank commander as gunner.

6. Protective clothing.

7. Better voice-radio equipment.

On par. 1. This issue was mentioned before. I again refer to the successful Russian solution.

On par. 2. Whereas tank guns were developed most rapidly, the sighting mechanism was hardly improved. Better enlargements and adjustable field of view are required. Successful firing depends on training and skill of the man who operates the range-finder. It should be possible to design a range finder which is coupled with the telescopic sight (as in a Leica camera) in order to relieve the gunner.

On par. 3. The burning residue escaping the ejected cartridges dangerously affected the crew. The ventilators did not suffice so that the crew was subject to nausea during prolonged combat. Sometimes, the smoke within the tanks prevented the crews from participating in further combat. The muzzle-blast smoke always unmasked the own position and hindered the own observation of the fire. Unfavorable wind even made it necessary that another tank had to take over observation and corrections. On all fronts I observed powder generating to much smoke.

On par. 4. There is no doubt about a successful employment of searchlights in attacks, in the offensive and defensive. (E.g. on the invasion front). This also applies to tank attacks at night. The Germans had not yet completed the development of searchlights which were coupled to the tank guns and had invisible light sources (infrared rays). I also should like to mention the importance of firing with silencers. Russian patrols and partisans used silencers designed by the Germans. The silencer is important not only to poachers but also to the military.

On par. 5. The tank commander is the only member of the crew who is able to look out. He designates the target, determines the range and orders the commencement of fire. The time which he needs to convey his orders to the gunner is practically lost and, very ofteh, is of decisive importance.

In addition, the tank commander sees the target from an angle which differs from that of the gunner. An optical transmission should enable the tank commander to fire in emergency cases. He who fires the first shot is victor in the duel tank against tank or antitank guh.

On par 6. Experience showed that 80 % of the crews of destroyed tanks suffered from serious burns. Leather clothing and the constant wearing of leather gloves proved to be a very good protection. Only the face remains unprotected. I tried to protect my men by making them wear asbestos masks. But nobody wore them as they were very inconvenient. Nevertheless, something should be done regarding this problem. A protective ointment should be sufficient. Many a tank soldier burnt to death because he could not free himself in time from the wires of their throat-type microphones. Development and improvement is also required in this field.

On par. 7. The leading of tanks entirely depends on the voice-radio communication system. The transmission of orders may be made impossible if the enemy succeeds in jamming the same wave length and in monitoring the alternate waves as well. Angl-American attempts in this field were very effective on the fron of invasion.

The interphone communication also was effectively jammed by the enemy. The impact of enemy shells often destroyed the fuses. Orders could not longer be communicated and the tank temporarily withdrew. Protective measures and improvements for ultrashort waves and interphone communication are required.

Concluding notes.

The above study is based on experiecnes and represent the personal opinion of the writer and, therefore, do not claim general validity. The war in the East showed its true face in the most horrible form. It showed that culture, civilization and international agreements are overruled by the instinct of self-preservation. Even today it is only a smal step from man to beast. The former German soldier remembers with mixed feelings those years of bloodshed. He remembers full of love and hate the vast and melancholic country, and remembers full of horror and admiration its inhabitants. But he cannot comprehend both, neither with feelings nor with brains. It is another world.

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