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SOLDAT

(1) The German Soldier on the Eastern Front 1941-43

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INTRODUCTION

Prelude to Barbarossa

Steeped in victory after nearly two years of war, Germany's Wehrmacht (Defense Force) prepared to undertake the most massive and ambitious campaign in the history of warfare, the conquest of the Soviet Union. Revelling in its stunning victories in Poland, France, the Low Countries, Norway, Denmark, and the Balkans, Germany felt confident enough to challenge the Bolshevik threat to the east. Besides ignoring history by attacking a nation with an immense manpower pool, considerable natural resources and a vast land mass, Germany failed to secure its southern flank in North Africa and the Mediterranean. Along with these failures, allowing Great Britain to remain unoccupied ultimately forced Germany to wage the traditionally-dreaded "war on two fronts".

Planning for Operation Barbarossa (Unternehman Barbarossa) had begun in August 1940 as Case Barbarossa (Fall Barbarossa), which was originally scheduled for 15 May 1941. The operation was delayed by the invasion of Yugoslavia, Greece, and Crete. The Balkans operation (Unternehman Marita), commenced at the beginning of April 1941 and was not completed until the end of May. This delayed the launching of Barbarossa as a four-week refit and reorganization was necessary for many of the units that would be committed; it was rescheduled for 22 June.

The German forces

The Germans gathered a massive force for Barbarossa consisting of 3,050,000 troops in 139 divisions. These included 17 panzer divisions, 10 motorized infantry divisions (including two Waffen-SS), and one cavalry division. The remainder were infantry, light infantry, and mountain divisions that in total, represented 75 percent of the Field Army. Another four German divisions and 14 Finnish divisions were in the far north. Germany's Axis partners, Romania and Hungary provided, respectively, 14 and two infantry divisions.

As of 22 June 1941, the spearheading Panzer Divisions contained 3,258 tanks of which 1,405 were the more capable Pz.Kpfw. III and IV models. Aside from assets controlled by the Heerestruppen (a total of five tank battalions, including three flamethrower tank battalions), other assets included 250 assault guns, 7,185 artillery pieces, 600,000 motor vehicles, 625,000 horses, and 2,770 aircraft (out of a total inventory of 4,300). An air fleet was assigned to support each army group. These forces were organized into three great Army Groups: North (Heeresgruppe Nord), Center (Heeresgruppe Mitte), and South (Heeresgruppe Süd), containing a total of seven German and two Romanian armies.

Heeresgruppe Nord contained two armies, Heeresgruppe Mitte also contained two, while Heeresgruppe Süd contained three German and two Romanian armies. Armies consisted of from six to 21 divisions under a varied number of corps. Each army group was spearheaded by a panzer group (Panzergruppe), two in the case of Heeresgruppe Mitte, a field army-size force (German traditionalists initially resisted designating them as armies, but they would be re-designated Panzer Armies in October).

Heeresgruppe Nord contained Panzergruppe 4 (Hoepner), consisting of three Panzer Divisions (1, 6 and 8) equipped with some 602 tanks.

Heeresgruppe Mitte contained Panzergruppe 2 (Guderian), consisting of five Panzer Divisions (3, 4, 10, 17 and 18), and Panzergruppe 3 (Hoth) consisting of four Panzer Divisions (7, 12, 19 and 20) equipped with a total of some 1,938 tanks.

Heeresgruppe Süd contained Panzergruppe 1 (von Kleist) consisting of five Panzer Divisions (9, 11, 13, 14 and 16) equipped with some 718 tanks.

The massive invasion was launched at dawn on 22 June 1941 on a 1,800-mile-wide front. The initial attack in the north and the center was through eastern Poland where the Soviets were established on the 28 September 1939 demarcation line, along the Bug and San rivers. A distance of some 150 to 200 miles had to be fought across before the actual frontier of the USSR was reached. Army Groups North, Center, and South were each assigned a primary objective, Leningrad, Moscow, and the Ukraine, respectively.

The Red Army awaits the onslaught

Although the Soviet Union gobbled up over half of Poland as well as the Baltic states during the 1939 German invasion of Poland, this was small consolation for their humiliating defeat during the 1939-40 Winter War with Finland. The Red Army's poor performance against the doughty Finns was further encouragement to Hitler, as he contemplated the next stage of his plan to expand the Nazi Reich to the Caucasus.

The Soviets manned the frontier military districts with 82 rifle divisions and six mountain divisions along with 36 tank corps, 18 mechanized corps, and seven cavalry corps, which were actually of division size. Most of these were forward deployed while some were held in reserve. There were also another 29 rifle divisions and one mountain division, as well as 11 tank corps, six mechanized corps, and one cavalry corps available in the strategic reserve. There were also large numbers of rifle brigades and other independent combat units as well as non-divisional artillery assets. These forces were organized into four Fronts of two to four armies each. More Fronts would be established after the invasion. The number of divisions and corps (which were actually the equivalent of a western division; there was no intermediate-sized "corps" echelon in the Red Army) assigned to an army varied greatly, but might be from eight to 16.

The Soviets possessed slightly less than 24,000 tanks, but only about a quarter of these were operational. Most were obsolete BT-series and T-26 types (approximately 17,000 on inventory), while only 1,475 were the modern and capable KV (508 on inventory), and T-34 (967 on inventory). The Red Air Force possessed 8,000 aircraft, mostly obsolescent. The Red Army of Workers and Peasants relied on slow, burdensome tactics, horse-drawn transport for most artillery and supplies, obsolescent weapons and equipment, and limited radio communications. The officer corps was gutted by Stalin's far-reaching purges of 1937-38, with up to 25,000 mostly senior officers executed. Furthermore, all units were stifled by a dominating political machine where a Commissar had veto power over command decisions. Only eight percent of the Soviet forces were mobile tank and mechanized units while 14 percent of the German forces were Panzer and motorized infantry.

The German "Soldat"

Massive Armies aside, this book's focus is on the individual German soldier in Russia, the "Landser". The German soldier was well trained and highly motivated. He possessed a good education, was in excellent physical condition, and was very well-led by a professional NCO and officer corps. Most were conscripts; many were recalled reservists. Together, they rode on an almost euphoric wave of victories won over the past two years; it appeared that nothing would stop the German Reich from fulfilling its destiny.

The German soldier's training had been thorough and realistic. He was encouraged to take the initiative, something not experienced in most period armies. He was completely confident in his battle-proven small unit tactics, proficient with his weapons, and comfortable with his leadership.

Small unit leadership and tactics

Small unit leadership in the German Army was shown to be superior to other European armies. NCOs were very well trained in a comprehensive and lengthy program, which encouraged initiative, developed flexibility, and taught them to care for the well-being of their men. The same applied to officers, although there was still a distinct "class" difference in their outlook. Regardless, Company officers routinely suffered the same difficulties and privations as their men. In the German culture the father figure is a dominant factor. The father is very much the head of the family and responsible for its well-being. The German Army strived to transfer this aspect to the small unit level. NCOs and junior officers were the fathers of their units. A leader practicing this method was highly regarded and effective.

German small unit tactics were based on fire and maneuver. Small units could produce a high rate of fire from a high percentage of automatic weapons backed by a variety of coordinated mortar, infantry gun, and anti-tank gun fire at all echelons from company to regiment. Organic divisional artillery fire as well as air support would back the organic firepower of the infantry regiment if the need arose. The tactics were simple, but variations allowed most situations to be dealt with effectively. Small unit tactics were based on battle drills, which were a series of prescribed formations, movements, and actions for different situations. These consisted of patrolling, manning outposts, defending positions, attacking enemy positions; crossing obstacles, water barriers, open ground or forests, or a meeting engagement when colliding with a moving enemy force. These tactics were practiced as part of larger units' actions on varied terrain and different enemy situations. Small unit leaders responded to orders from their superiors ensuring coordinated action, but in the event they were out of contact, they were encouraged to take the initiative and act on their own.

Through the many and varied exercises the German soldier learned to deal with almost any typical situation; because of this experience they could often respond effectively to unusual circumstances. This emphasis on flexibility and responsiveness would be an essential ingredient in the coming war of movement. It was especially valuable when implementing the German concept of task organizing units for combat. Battle groups (Kampfgruppen) were tailored for missions by cross-attaching all-arms units to the core unit. All elements were completely subordinated to the Kampfgruppe commander.

Personal equipment of the infantryman

The Landser was very well-equipped as an individual soldier, as good as any in the world. A rifleman (Schütze) wore the trademark M35 steel helmet, which provided superior protection. His leather belt with support straps carried two sets of three ammunition pouches for a total of 60 rounds for his carbine. Also worn was a combat harness for his mess kit and "Zeltbahn" camouflage rain cape/shelter quarter (which could be assembled into a tent by combining it with three others), an entrenching tool (some had a folding model, which was copied by the US Army), a bayonet attached to the entrenching tool carrier, a bread bag for rations, gasmask canister slung over his shoulder and an anti-gas cape in its pouch attached to the shoulder strap. Most riflemen were issued a field flashlight and all carried wound dressings inside an inner tunic pocket. A small backpack was provided for spare clothing, personal items, and additional rations along with a satchel-like spare clothing bag. These latter two items were typically carried in the rifle platoon's If.8 infantry cart along with reserve ammunition. Larger rucksacks soon began to replace the old backpack.

Company-level weapons

German weapons were for the most part of modern and effective design. The infantryman carried the excellent 7.92mm Kar98k carbine, a compact and reliable bolt-action Mauser design. A small percentage of infantrymen, mainly small unit leaders, carried the 9mm MP38 or MP40 machine pistol, one of the most effective submachine guns ever produced. The 7.92mm MG34 light machine gun was present in every rifle group (squad), another extremely effective and modern weapon. Rifle companies and battalions possessed additional MG34s mounted on sustained-fire tripods to fulfil the long-range heavy machine gun role. However, two of the basic company-level support weapons proved to be less than effective. The 5cm l.GrW36 light mortar was relatively heavy, complex, expensive, and not overly lethal. Another was the 7.92mm PzB39 anti-tank rifle, obsolete by the time of the invasion.

Some units though, especially the recently raised reserve divisions and Waffen-SS divisions, were armed with non-standard infantry weapons, captured or commandeered from occupied countries. These were usually of good quality, but had to be used since German production lines were unable to keep pace with the rapidly growing army and to make good battlefield losses, which were being experienced prior to the advent of Barbarossa.

Battalion-level weapons

Each infantry battalion contained a MG Kompanie, which fielded eight MG34 heavy machine-guns on the sustained-fire mount. Not merely a "machine-gun" company, these support units also fielded six of the excellent 8cm s.GrW34 heavy mortars, which could fire 15 bombs per minute out to a range of 2,625 yards. Aside from high-explosive and smoke bombs, this weapon also fired a "bounding" bomb. When the Wmg39 Umg bomb contacted the earth, a small charge would detonate, causing it to bound back into the air, showering fragments in all directions. This was especially effective against troops in the open.

Regiment-level weapons

Each infantry regiment possessed its own artillery in the form of 7.5cm l.IG18 and 15cm s.IG33 infantry guns, workhorse pieces operated by specially trained infantrymen. These were concentrated in the 13th Kompanie. Regimental anti-tank companies (the 14th Kompanie) contained the 3.7cm PaK36 anti-tank gun. It was a good design, but soon proved to be inadequate against the more modern Soviet tanks that were beginning to appear on the battlefield.

Division-level weapons

German artillery pieces were sound designs, as were most of their Soviet counterparts; at this stage, the Germans simply employed them more effectively. On paper, a German Infantry Division possessed an Artillery Regiment with three light and one heavy Batteries. The three light Batteries contained a total of 36 guns, the modern and reliable 10.5cm l.FH18. The heavy Battery contained 12 guns. These were the equally modern and reliable 15cm s.FH18. Some units had only eight of these guns, with the remaining pieces being the long-range 10cm sK18 gun.

Infantry Division organization

The 17,000-man infantry division consisted of three infantry regiments, an artillery regiment with three 10.5cm battalions and a single 15cm battalion; reconnaissance, anti-tank, pioneer (engineer), and signal battalions plus divisional services. Trucks transported much of the supporting battalions, but most of the supply columns and all of the artillery were horse-drawn. The light infantry (leichte Infanterie) and mountain (Gebirgs) divisions were similarly organized, but with only two infantry regiments, lighter equipment and less artillery.

The 3,250-man infantry regiment (Infanterie-Regiment) had a staff with a horse-mounted (or bicycle-mounted) reconnaissance section, pioneer and signal platoons. The regiment controlled three infantry battalions, an infantry gun company (Infanteriegeschütz-Kompanie) with six 7.5cm l.IG18 and two 15cm s.IG33 guns, and an anti-tank company (Panzerabwehr-Kompanie) with twelve 3.7cm PaK36 guns. All were supported by a light infantry column (leichte Infanterie Kolonne), which transported ammunition, rations, and baggage.

Each infantry battalion (Infanterie-Bataillon) had a staff (Stab), three rifle companies (Schützen-Kompanie), and a machine gun company (Maschinegewehr-Kompanie) with eight heavy machine guns and six 8cm mortars. The smallest sub-unit was the group (Gruppe), equivalent to a US squad or British section. It usually consisted of ten men: a group leader, rifle troop leader (assistant group leader), a three-man machine gun troop, and a five-man rifle troop. Four groups comprised a platoon (Zug) with a platoon troop (platoon headquarters) and a 5cm mortar troop. Many platoons had only three rifle groups by this time because of the expanding army. Those companies with only three groups per platoon often had a group of two heavy machine guns. The company and the battalion both had a small baggage train.

Germany's mechanized forces

Relatively speaking, the mechanized divisions spearheading the invasion were few in number; some of the Panzer divisions were smaller than their 1939 predecessors, having given up part of their assets to raise new divisions. For instance, the 1.Panzer-Division fielded 145 tanks, while the 7.Panzer-Division fielded 265 tanks. The numbers of panzers in other divisions fell somewhere in between. No two Panzer Divisions were organized alike. For instance, some (such as the 3.PzDiv) still contained a Panzer Brigade consisting of a single regiment, but with three battalions. Some (for example, the 6.PzDiv) had the Panzer Regiment as the highest echelon, yet still contained three battalions. Others (such as the 9.PzDiv) had the newer organization, which consisted of a single Panzer Regiment with two battalions. In addition, battalions could have either three or four companies.

Generally speaking, each Panzer Division fielded two motorized infantry regiments with two infantry battalions each. Only one of the four motorized infantry battalions might have half-track armored personnel carriers; the rest were transported in light trucks. The artillery regiment's guns were drawn by half-tracks. Other organic divisional assets were similar to those seen in infantry divisions, but fully motorized.

A typical motorized infantry division (they would not be re-designated Panzergrenadier Divisions until 1942) had only two motorized infantry regiments with two (occasionally three) battalions each. A single divisional tank battalion provided the armored striking power.

Into Mother Russia

Russia proved to be a totally alien environment to the German soldier, and an extremely harsh one at that. The vast open spaces, with their endless horizons and lack of landmarks for guidance, were extremely strange to the Landser from densely-populated Germany. The huge forests and swamps too, were alien. In the summer months mosquitoes and flies were a serious problem, often transmitting serious diseases, such as malaria. The unsanitary conditions brought dysentery and diarrhea. The summers were blisteringly hot, dry, and dusty. In many areas, especially in the south, there were serious water shortages.

The extremely crude and sparse road network was also a problem. The dust and heat was hard on vehicle engines as well as on men and horses. In the autumn came the heavy rains, and with them the legendary mud, called "rasputitza". The dirt roads, already deeply rutted and churned to dust, became bottomless quagmires. Log corduroy roads could be laid in seriously eroded areas, but the many thousands of miles of roads, which were always pressing forward, would have required more pioneer capabilities and time than were available. As roads were churned into dust and became rutted, traffic began driving on the edges. The roads grew broader eventually becoming over a hundred yards across. When the rains came, the roads turned into broad rivers of mud. With the rain and vehicle traffic, river crossing sites were turned into huge mud holes. The spring thaw was just as bad: melting snows created the same quagmires, and coupled with broken ice, made river fording with vehicles an extremely hazardous undertaking.

A common statement made by German soldiers was, "The two worse things in Russia are the lice and snipers." But then the Russian Winter arrived. Moscow is at the same latitude as Hudson's Bay, Canada. The snows begin in November and work their way southward through the month. Temperatures plummet to as low as -52 degrees Centigrade (-62 degrees Fahrenheit). Vehicles refused to start due to frozen batteries and oil. Fires were lit beneath vehicles to thaw them out. Optical weapons sights and devices became useless and radios inoperative. Small arms actions froze, along with their lubricating oils. Artillery, mortar, and grenade fuses failed to function. Exhaustion, inadequate rations, cold-related illness, and frostbite took its tool on soldiers who were both physically and psychologically unprepared for the horrid conditions.

The German General Staff had undertaken virtually no research on the actual effects of the Russian Winter. No studies were made by the Germans regarding the experiences of others, or, for that matter, that of their fathers who fought for the Kaiser against the Russians in World War I.

In that first Russian winter of 1941/42 the German Wehrmacht was completely unprepared for what it faced, especially in regards to extreme cold-weather clothing. In Germany the soldier was issued a greatcoat, pullover sweater, long underwear, and gloves, all made from wool. These proved inadequate during that first terrible winter. The Germans possessed sufficient extreme cold weather clothing for only one in five soldiers, while there were no snow camouflage items. Desperate expedient measures were undertaken ranging from the use of recovered Russian clothing, to stuffing jackboots with straw. Clothing drives were conducted in Germany to provide mostly inadequate winter clothing in limited quantities. More troops were lost to frostbite and other cold weather injuries than to combat action.

The supply situation

The supply situation was exacerbated by the almost non-existence of metalled roads throughout the Soviet Union. The Soviet railroad system operated on tracks that differed in width from those used in Germany and the rest of Western Europe. Therefore, trains were needlessly delayed. Rations were often short as was the supply of ammunition. Replacement weapons and equipment were extremely slow in arriving, as were replacement troops and horses. It was common to use Soviet weapons and equipment to alleviate perpetual shortages. Field expedients, improvisation and "making do" with what little was available became a way of life.

The masses of Red Army prisoners were unexpected and at times they almost overwhelmed the German supply system. Ration stocks were inadequate to provide for the prisoners; at any rate, due to the brutal nature of the combat, there was very little inclination to care for them. Nazi propaganda portrayed the Russian masses as sub-human, and the German soldier was initially inclined to believe it as he tore through crumbling Soviet armies or mowed down ad-hoc mobs of riflemen. Initially, many Russians and Ukrainians welcomed the Germans as liberators. The Germans, raised in a spirit of unquestioning loyalty to the Fatherland, disdained these turn-coats, though they did not hesitate to employ them or eventually absorb them into their ranks. Soon however, many Soviet citizens turned against the Germans because of the invaders' highhanded and often brutal attitude.

The original German plan was for all but about 50 divisions to be withdrawn during the winter of 1941-42, once the shattered Soviets were pushed back beyond Moscow. To no-one's surprise, the Soviets failed to comply with Germany's timetable. They continued to resist stubbornly, while conducting offensive operations through the brutal winter of 1941-42.

The suffering of the "Soldat" of the "Ostheer" had barely begun.

22 June 1941, on the morning of the invasion of Russia, a divisional bridge column of motor vehicles awaits the signal to advance. The column includes Horch cross-country cars, as well as Büssing and Henschel trucks towing bridge equipment "T" Type 1 pontoon trailers. These vehicles were part of Panzergruppe Guderian (re-designated 2.Panzerarmee in October) under Colonel General Heinz Guderian. Containing some 996 tanks, his command consisted of five Panzer divisions, three motorised infantry divisions, one cavalry division and six infantry divisions under control of XXIV, XLVI, and XLVII Panzerkorps.

The forward observer of an artillery battery with a 6x30 Sf.14Z Scherenfernrohr (scissors periscope) observes the enemy from a trench. Forward observers were assigned to artillery batteries to establish observation posts among frontline infantry units. Communications between observation posts and the firing battery was usually by field telephone; radios were also available for use. Normally targets were engaged by an artillery battalion, with the observers correcting the fire of their battery.

Operation Barbarossa commences as a column of vehicles of Panzergruppe Guderian's 18.Panzer-Division advances; note the division's shield insignia on the car to the right as well as a Panzer Rhomboid tactical sign. Group vehicles were identified by a white letter "G" painted on the rear and sometimes in other positions (Panzergruppe von Kleist used a white "K"). At this time, German vehicles were painted dunkelgrau RAL 7021. Clouds of smoke on the horizon indicate the Luftwaffe was effective in destroying and dispersing the surprised Soviet forces.

Pioneers prepare a pontoon bridge crossing site using a small inflatable-rubber "Schlauchboot". These boats could carry three or four combat-equipped men, or 660-pounds of equipment. They had a beam of 3-feet, 9-inches and a length of 9-feet, 10-inches. Mainly used by pioneers for reconnaissance of crossing sites, they could also ferry infantry reconnaissance patrols across water obstacles and were sometimes used to float small infantry pontoon footbridges (Schlauchboot-Brücke).

An 8.8cm FlaK18 in its firing position with its tube at maximum elevation. FlaK is the acronym for Flieger-Abwehr-Kannon, or air-defense gun. Similar models in use at the time included the FlaK36 and 37. A formidable air-defense weapon, it was also employed as an ad-hoc anti-tank gun. Although less-than-ideal in the latter role because of its high profile and lengthy emplacement/displacement time, when provided with armor-piercing rounds, it was capable of destroying any tank in existence.

Male Soviet civilians were rounded-up as the Germans raced though towns and villages. Young men were apprehended to determine if they were straggling soldiers masquerading as civilians. Often, rounded-up men were employed as forced labor to maintain lines of communication and unload supplies. Some civilians attempted to defend their homes and were shot as partisans. The executions did not deter partisan warfare from expanding, especially since such activities were supported by thousands of Soviet soldiers who, after being cut-off by the German spearheads, found themselves behind enemy lines.

In a rather relaxed scene Colonel-General Guderian confers with his staff on the next operational move on the Central Front. Along with Panzergruppe Hoth, Guderian's objective was the city of Smolensk on the road to Moscow. Already the Panzer divisions had raced far ahead of the infantry, capturing hordes of prisoners and masses of equipment. By mid-July 1941 there was the worrying problem of maintaining momentum due to the increased length of supply lines, which created logistics shortages, but there was widespread belief among commanders that the campaign was drawing to a victorious conclusion.

Colonel-General Heinz Guderian confers with his commanders and staff. Staff vehicles of German commanders displayed pennants or flags denoting the echelon of command and type of unit. Division and higher echelon formations were identified by various flags in the German national colors: black, white, and red. Panzer regiments and battalions used black and pink pennants, the latter being the branch color (Waffenfarbe) of the Panzertruppen. Over the staff car's right fender is the general's command pennant: grey background, white Wehrmacht eagle and border. In the background a number of tanks can be seen advancing.

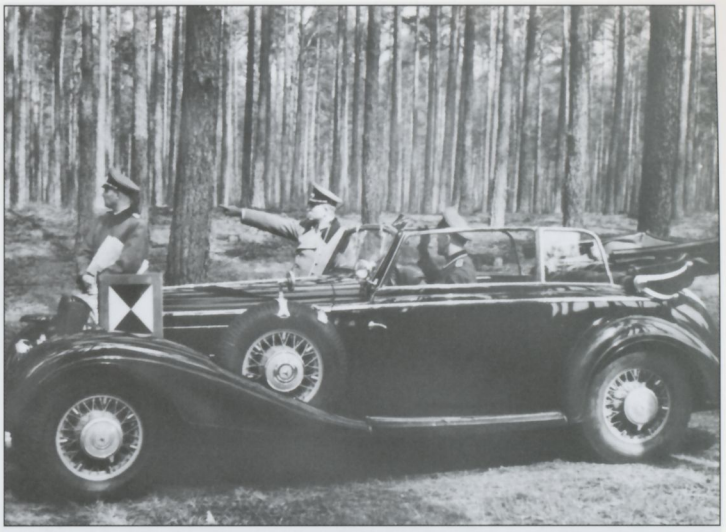
This Waffen-SS 7.92mm MG34 light machine-gun crew can be identified as such by their "plane tree" pattern camouflage helmet covers and smocks and black collar tabs. Often Waffen-SS units were equipped with substitute machine-guns rather than the standard MG34, such as the Czechoslovak 7.92mm zv.26 and zv.30, which the Germans called the MG26(t) and MG30(t), respectively. Aside from their main weapon, a pair of Stg24 stick hand-grenades can be seen on the ground, ready for use.

With the campaign on the Eastern Front thought to be more-or-less won, there was a widespread feeling of ease within the ranks of the invaders. The Panzers were advancing miles ahead of the infantry, who were reaping the harvest of that success. Here, unit tailors working under a hot Russian sun, carry out uniform repairs; officer's breeches are being mended in the case of the tailor using the sewing machine.

A 8-ton Sd.Kfz.7 halftrack pulls a 15cm s.FH18 heavy field howitzer, which is being transported with the barrel retracted. The white "B" on the elevating cylinders identifies the individual gun (lettered A through D) in each battery. The German phonetic letters were: A- Anton, B- Bertha, C- Cäsar, and D- Dora. Each division had a battalion of 12 of these heavy guns. The vehicle and howitzer is passing a line of Russian troops, who were taken prisoner following Guderian's successful offensive at Roslavl during early August 1941. Guderian's well co-ordinated attack destroyed fourteen Soviet divisions, of which four were tank divisions. The battle of Roslavl was one of the quickest, as well as one of the most complete, of Germany's early victories in the East.

Colonel-General Guderian's Horch light staff car steers well clear of a vehicle that has been blown onto its roof, probably by artillery fire. His registration plate, WH-656652, can be seen displayed on the rear of the vehicle. Registration plates carried a two-letter prefix indicating the branch within the Wehrmacht (Defense Forces) to which a vehicle was assigned, in the case of the Heer (Army), it was WH, denoting "Wehrmacht Heer".

Colonel-General Heinz Guderian confers with one of his division commanders. Both men wear the general's pattern field grey greatcoat. The greatcoats have a dark blue-green collar, which when worn opened, as by Guderian, revealed the red-faced lapels. The inside of the coat above the waist was lined in bright red cloth. Guderian was a brilliantly imaginative officer who had won an almost unique reputation following the Polish and French campaigns. In Russia he continued to formulate the concept of the tank-led Blitzkrieg that brought his forces thundering to within grasp of Moscow in late 1941.



Deep in a pine forest standing next to his glossy black Mercedes-Benz touring car, Colonel-General Guderian indicates a direction of movement to one of his division commanders. The red, white and black command flag indicates the commander of a Panzergruppe. Such flags and pennants were made of sheet metal. It was seldom that the highly-respected Guderian was seen travelling in such luxury.

On a congested road containing vehicles of the 10.Panzer-Division; note unit insignia and Panzer Rhomboid tactical insignia on vehicle in the center of the photo, Guderian's Horch light staff car is escorted by three solo motorcyclists (Solokrad). Note that the motorcycles have the white letter "G" painted on the brown leather saddlebags. The motorcyclists are wearing the field grey rubberised waterproof motorcyclist's protective suit and are armed with 7.92mm Kar98k carbines. Note the combination sidecar motorcycle (Beiwagenkrad) to the right mounting an MG34 machine-gun.

In order to obtain a wider view of the battlefield, an officer uses a standard pair of binoculars instead of the nearby Sf14Z scissors periscope. Although the periscope, commonly known as "donkey ears," was able to estimate ranges, it provided a rather narrow field of vision. This unit is fitted with long, tube-like lens hoods to prevent light reflection from revealing the observer's position.

Guderian's staff car is escorted by two motorcycles near the front. Mid-September rains combined with heavy vehicle traffic routinely turned the poor Russian road system into quagmires. An abundance of long straight pine trees and the industry of German pioneer troops provided corduroy roads as a means of traversing the mired dirt roads. Sometimes two or three layers of logs laid perpendicular to one another were used to support the weight of tanks and heavy artillery, especially in particularly sodden areas. In order to provide a smoother travelling surface, a layer of earth was laid atop the logs, but rains would turn this into mud as well.

A motorcycle crew repairs their rear tire in a pine forest clearing. The summer season provided the best weather for deep thrusts into the Soviet Union, but the coming autumn rains, and the resulting "rasputitza" mud, would arrive all-too-soon. Rather than the standard "WH" (Wehrmacht Heer) prefix on the registration plate, this motorcycle is prefixed with "OI" indicating it is actually a commandeered civilian machine. However, research indicates that only three prefixes began with the letter "O". OT, for "Organization Todt"; OL, for Oldenburg and OD, for Oberdonau.

A motorized column, led by a Steyr 1500 heavy car, passes one of the seemingly endless groups of refugees trudging west. Guderian's troops drove deeper into the Soviet Union in order to gain as much ground as possible before the Red Army was able to consolidate and establish viable defenses. Often the Russians herded refugees westward to clog roads and force the Germans to deal with them in an effort to slow the advance. Refugees quickly learned to clear the road in front of an advancing German column, as it would not stop. Even though much of the Red Air Force had been caught on the ground, there were sufficient marauding aircraft available to force the Germans to camouflage vehicles with foliage, as seen here.

A battery of 10.5cm l.FH18 light field howitzers are firing against Soviet positions in the Roslavl Pocket, August 1941. The l.FH18 was the standard divisional light artillery piece, with four per battery. There were three batteries in each of a division's three battalions, for a total of 36 guns. In Panzer and motorized divisions these weapons were towed by 3-ton Sd.Kfz.11 halftracks; in infantry and other non-motorized divisions they were pulled by teams of horses. Note that the howitzer used semi-fixed ammunition, that is, the projectile and cartridge case were not fixed together as a single-loading round. This allowed the number of propellant increments to be varied for range changes.

This 15cm s.FH18 heavy field howitzer has been positioned among a few saplings and provided with additional camouflage. The crew's carbines can be seen stacked beneath tree limbs forward of the howitzer. This piece is fitted with aluminium wheels for towing by draft horses. Howitzers intended for motorized towing were fitted with solid rubber tires. This piece remained the principal divisional heavy field howitzer throughout the war. Its maximum effective range was 14,570 yards.

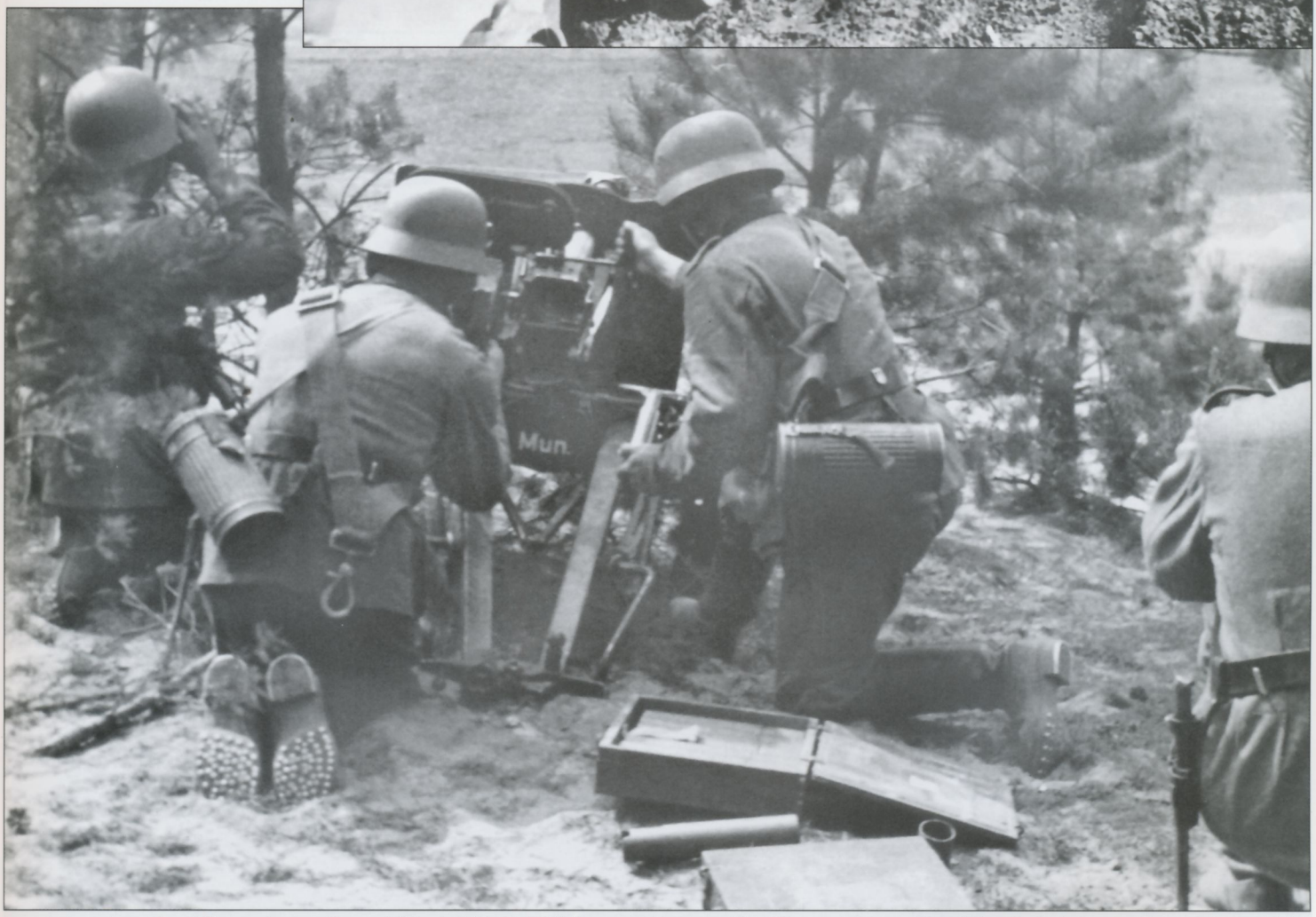
From his machine-gun post a Gefreiter gunner overlooks the Baltic Sea in August 1941. By this time German supply lines were overstretched on the northern front while Soviet resistance had stiffened on the road to Leningrad. There were fears of Soviet amphibious landings via the Baltic Sea using naval infantry, so defensive positions were established at key points on the coast. The stacks and booms of a sunken ship indicate this position is located outside a seaport. Such defensive units were often armed with obsolete World War One 7.92mm water-cooled MG08/15 light (shown here) and MG08 heavy machine-guns. Often called a "Spandau," because the Spandau Arsenal outside of Berlin had produced many, it was actually a Maxim design. This particular gun has a special mount, ring sight, and 250-round ammunition box to optimize it for the anti-aircraft role.

A column of soldiers is escorted by single-axel Maschinengewhr-Doppelwagen 36 (twin machine-gun wagon). The wagon could be towed by a light field car or, with the addition of a single-axel limber (Vorwärtswagen), drawn by two horses as seen here. Production of these efficient steel wagons was discontinued as they consumed materials needed for armored fighting vehicle production; they were seldom seen after 1943. The 7.92mm MG34s could be dismounted and fired from their integral bipods or from two Lafette 34 mount tripods, which were carried in the limber or car along with reserve ammunition, spare barrels, and other equipment. The entire Zwillingslafette 36 (twin mount) with its pedestal, integral 250-round ammunition containers, and gunner's seat could be removed from the wagon and installed in a ground position by bolting the pedestal to a timber platform. Although fitted with an anti-aircraft ring sight, the guns could be turned on ground targets as well.

Wicker artillery projectile shipping containers are stacked some distance from this 15cm s.FH18 heavy field howitzer. The Germans made extensive use of this low-cost material for ammunition containers. Shipping boxes for the propellant cans are seen to the rear of the howitzer. This gun is set up among farm buildings, apparently before the Soviets began the "scorched-earth" policy of burning such structures as they retreated to deny the Germans their shelter in the coming winter. Later, the Germans avoided establishing positions around farms or villages as that would attract aircraft and artillery fire.

German troops experience a taste of things to come as they push a mired truck forward. The autumn rains would increase and have as much a hand in slowing the German advance as gathering Soviet resistance. German soldiers, used to their own well-developed and efficient highway system, were stunned by the lack of even simple asphalt roads within the extremely sparse road network they encountered in the Soviet Union. These soldiers carry standard infantry equipment including: gas mask canisters (note that some are dented from hard use), canteens, mess kits, folding entrenching tools, bread bags, bayonets, and camouflage shelter capes. Often on the march soldiers were permitted to fasten their helmets to their belts and go bareheaded.

A Kradschützen (motorcycle rifle) unit watches as a crew push-starts their motorcycle sidecar combination. "Krad" was a contraction of Kraftrad (motorcycle). Kradschützen units were extremely flexible, being employed for reconnaissance, screening, flank security, exploitation, and other economy-of-force missions. They were found to be of only limited effectiveness in the weather conditions encountered in Russia. They were increasingly replaced with the jeep-like Kübelwagen and other light trucks to improve mobility, as they increasingly took on the role of motorized reconnaissance. By March 1943 most Kradschützen units were disbanded with their assets absorbed into Panzergrenadier units.



A rare view of a 2.8cm schwere Panzerbüchse 41 (s.PzB41) heavy anti-armor rifle. This weapon employed the Gerlach tapered-bore principal. The specially-constructed 2.8cm projectile was "squeezed" down to 2cm when it emerged from the muzzle resulting in a high velocity. The tapered-bore gun tube was expensive to produce, as was the ammunition, which required an armor-penetrating core of scare tungsten carbide. The production of such weapons (including the heavier 4.2cm and 7.5cm guns) and their ammunition was discontinued in 1942, though they remained in use until existing stocks were expended. This s.PzB41 is being fired from its two-wheel mount with the split trails still locked together. The wheels could be dismounted and the weapon fired in a low-profile ground position with the trails spread. The crewmen wear wide straps that were used to help man-handle the weapon into position.

Soldiers struggle to move their BMW R61 or R66 motorcycle combination through a road section churned into mud. The white tactical marking on the front of the sidecar, the same as used as a map symbol, identifies the unit as the staff (small flag-like squiggle at the top of the staff) of a pioneer (two small arrow points) battalion (pennant). The NCO to the left is a Feldwebel (field sergeant), roughly equivalent to a US Army staff sergeant. Note his three-color splinter-pattern camouflage helmet cover, which saw limited issue.

An abandoned Soviet 122mm M-1931/37 (A-19) gun-howitzer and licence-built Caterpillar tractor sit outside of Kiev, the capital of the Ukraine. Like their German opponents, most Soviet divisional artillery was horse-drawn, but non-divisional heavy artillery units were often tractor- or truck-drawn. These tractor-drawn weapons were particularly valuable considering the limited Russian road system and weather conditions. The Cyrillic inscription on the tractor's grill is "Stalinets", the name of the factory that produced it. The Germans freely pressed captured Soviet artillery into service; they designated this particular piece "12.2cm Kanone 390/2(r)".

Pioneers are setting a 4-meter aluminium light assault bridge section in place as a ramp to bridge the gap to shore from a recently completed pontoon bridge. Pre-fabricated wooden road-bed sections were laid atop medium inflatable boats to form a pontoon bridge capable of handing trucks and light tanks. A single inflatable boat could support 1.35-tons and had a 6-foot beam with an 18-foot length. On the far shore are the bridging column's trucks and trailers, which were used to transport the boats and road-bed sections. These same boats were also used to construct rafts of different capacities using the same road-bed sections. A 2.25-ton raft consisted of two boats; four made up a 4.5-ton raft, and six made up a 9-ton raft. All types of bridging and river crossing means were essential due to the large number of rivers and streams encountered as the Germans plunged deeper into Russia.

Russian roads and terrain, coupled with the long distances travelled, were brutal on motorcycles. Here motorcycles are rebuilt at a field depot. Extended supply lines, equipment losses through combat and routine wear, plus insufficient replacements, forced German units to resort to rebuild, cannibalisation, and expedient means of vehicle repair and spare parts fabrication. The shield-shaped device on the saddlebag of the motorcycle to the left appears to be the "Berlin Bear" insignia of the 3.Panzer-Division.

An Obergefreiter scans the sky for enemy aircraft while seated behind his 7.92mm MG34s on the twin Zwillingslafette 36 mount. The silver-on-black Wehrmacht eagle decal is on the side of his M35 steel helmet and was worn by Heeres personnel on their helmets. Luftwaffe personnel wore the distinctive diving eagle on their helmets. The Waffen-SS, not being a component of the Wehrmacht, displayed instead a shield surmounted by a swastika. The double bars worn on his dark blue-green collars had its origins with the Guards Corps of the old Imperial Army. In the case of the Guards the bars signified protection of the Crown; in the Third Reich they implied protection of the nation.

A signal unit, with its equipment loaded in brown leather cases on pack mules, crosses a minefield within a cleared lane marked by white tape. The use of mules was unusual in that the German Army mainly relied on horses. The entrances to such cleared lanes were marked on either side by rectangular signs, with one half painted white, the other half painted red. The cleared gap was on the side of the sign painted white. Sometimes "Minen entmint" (mines removed) or "Minen Gaße" (mine gap) was painted on the sign in contrasting colors (white lettering on the red half, for example). If red paint was not available, black was substituted.

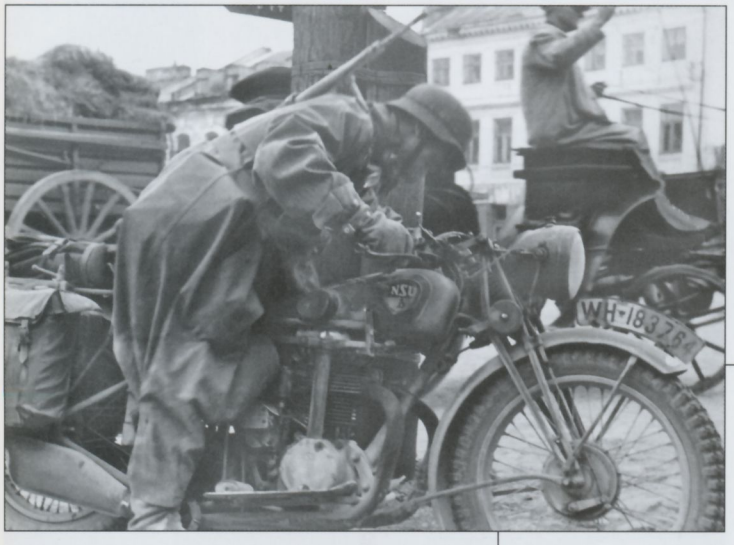
German losses were so high because of combat, illness, and cold weather injuries (mainly frostbite), that this comparatively small unit is probably the remains of a company. They are inadequately clothed for cold weather lacking even wool greatcoats; some do not even possess gloves. However, their attitude and appearance (as well as a lack of most weapons and equipment) suggests that this particular formation is ceremonial in nature. Most wear liberated Russian ushanka fur caps while some wear issue field caps with wool scarves to protect their ears. Two individuals in the foreground are wearing ear protectors with under-the-chin tie-tapes. This served to protect the ears when wearing the steel helmet (which offered no protection from the cold), by preventing the tops of the ears from being frozen to the inside of the helmet, a common hazard in the Russian winter.

Once the Germans occupied an area they quickly erected directional signs that led to the many occupation and administrative organizations in a particular area of operations, such as this group with an accompanying military policeman. The Feldgendarmerie (field military police) were established in 1939 using mobilized civil Gendarmerie personnel and Heeres NCOs. They were identified by orange arm of service piping (a traditional police color), a silver-edged brown band on the left cuff inscribed with the legend "Feldgendarmerie" in silver, and an orange embroidered eagle and wreath on the left shoulder. These distinctions were not always worn on the greatcoat. This best known means of identification of the Feldgendarmerie was the dull aluminum Gorgot plate suspended around the neck by a chain. The Feldgendarmerie inscription (on a grey scroll), national eagle, and buttons were finished with a greenish-yellow luminescent paint. The chain-suspended Gorgot led to the common soldier's nickname for the Feldgendarmerie, "Kettenhund" (chained dog).

A group of Waffen-SS troops man a forward trench, properly positioned in a tree-line. They wear an assortment of jackets and the reversible winter uniform, different colored steel helmets, and field caps. The winter of 1941 was one of the coldest on record in Russia, making it virtually impossible to dig in the hard-frozen ground with infantry hand tools. Often explosives were employed to blast holes in the earth that were made into fighting positions. The craters were squared off with hand tools, then covered with logs and earth spoil to provide some protection from the elements and enemy fire.

A group of German soldiers conduct a patrol in the snows of Russia. Although the issue wool knit sweater, wool gloves, and greatcoat offered protection from the much more moderate weather at home, German soldiers were inadequately clothed for the brutal Russian winter. As an expedient measure, soldiers often salvaged winter clothing from dead Russians and prisoners, or they sometimes received donated civilian winter clothing sent from home. The non-insulated leather marching boots were extremely cold, so soldiers lined them with newspaper and wrapped their feet with cloth strips, a common Russian substitute for socks. By the time winter arrived, many soldiers had worn out their one pair of wool trousers and were forced to wear the only other trousers they possessed, off-white thin denim drill trousers.

Russian horses, valuable because of their hardiness, were pressed into service as were Russian sleds known as a "pluk", as here, to haul supplies when German wagons and motor transport were immobilized. The German Army relied extensively on horse-drawn transport even as the Russian winter took a serious toll on thousands of them. German forces invading the Soviet Union began with three-quarters of a million horses, sometimes losing thousands per day. Aside from death due to combat action, horses also succumbed to the extreme weather, lack of forage, exhaustion and illness; they were often butchered and consumed by starving soldiers.

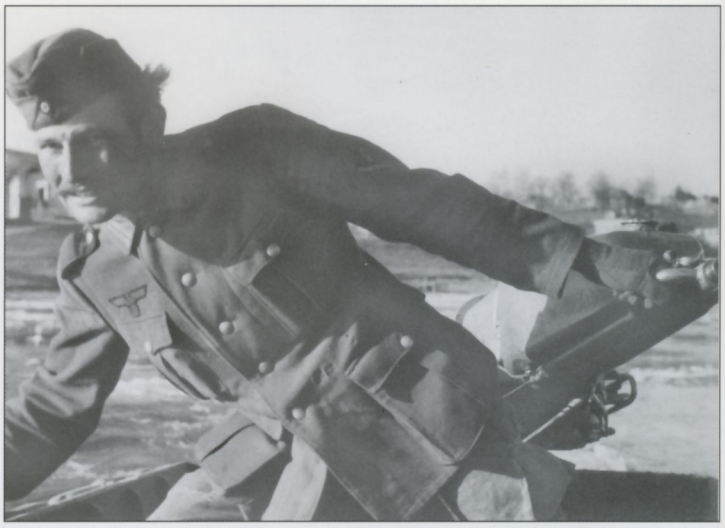


A motorcyclist, fully outfitted in the one-piece protective suit (Schutzmantel für Kraftradfahrer, commonly known as a "Kradmantel") makes an adjustment to his NSU motorcycle. This was an ankle-length field grey rubberized waterproof coat that was gathered around the ankles and buttoned in-place to protect the legs. Most had a field grey cloth collar, but some were made with a dark blue-green collar. Equipment could be worn beneath the Kradmantel to protect it from mud and water, but in combat it would more typically be worn on the outside of the garment. Overshoes, canvas over-gauntlets or other gloves were typically worn with this garment.

A gun crew struggles to drag their 3.7cm PaK36 up a steep incline. The PaK36 was the standard anti-tank gun at the beginning of the war with 12 guns in each of an infantry division's regimental anti-tank companies. "PaK" is a contraction of Panzer-Abwehr-Kanone, or armor-defense gun. In March 1940, Panzerabwehr units were re-designated as Panzerjäger (tank hunters) in order to provide a title suitable to an army very much oriented towards the offense. As better protected tanks were encountered in Russia, the German soldier began calling the 3.7cm PaK the "Türklopfer" (Doorknocker) in recognition of its limited armor-piercing capabilities.

Two artillerymen check the breech of their 15cm s.FH18 heavy field gun prior to bringing it into action, a requirement after transporting it. The Kanonier to the right wears the field grey slip-on unit identification loop on his dark blue-green, red-piped shoulder strap. Previously, unit identification was embroidered in the arm of service color directly on the shoulder straps.

Two soldiers catch some sleep aboard a horse-drawn artillery limber. The man to the right is a Sanitätsunterpersonen, a unit medic commonly called a Sanitätser. He is identifiable by the gold-yellow snake entwined staff on a dark blue-green backing. These were not medical branch personnel, but unit members training as medics. Note that one of the two Kar98k carbines above his arm is fitted with a muzzle protector. This had a flip-up cap that could be locked open when firing. It was later replaced by synthetic rubber cap that could be shot off. The insignia of the 5.Jäger-Division is painted on the end of the seat below the left hand soldier.



A moustachioed pioneer Sturmboot (assault boat) helmsman, a Gefreiter, negotiates his way across a river. Constructed of wood, the Sturmboot had a beam of 5-feet, 2-inches and a length of 19-feet, 9-inches, had a crew of two and carried nine passengers. The outboard engine, known as a "powered oar" gave the boat a top speed of 16 knots. The propeller was fixed to a long shaft connected to the motor. The entire apparatus was steered by the helmsman, who stood in the stern gripping two handles above the engine housing, swinging the entire engine on a pivot mounted on the transom.

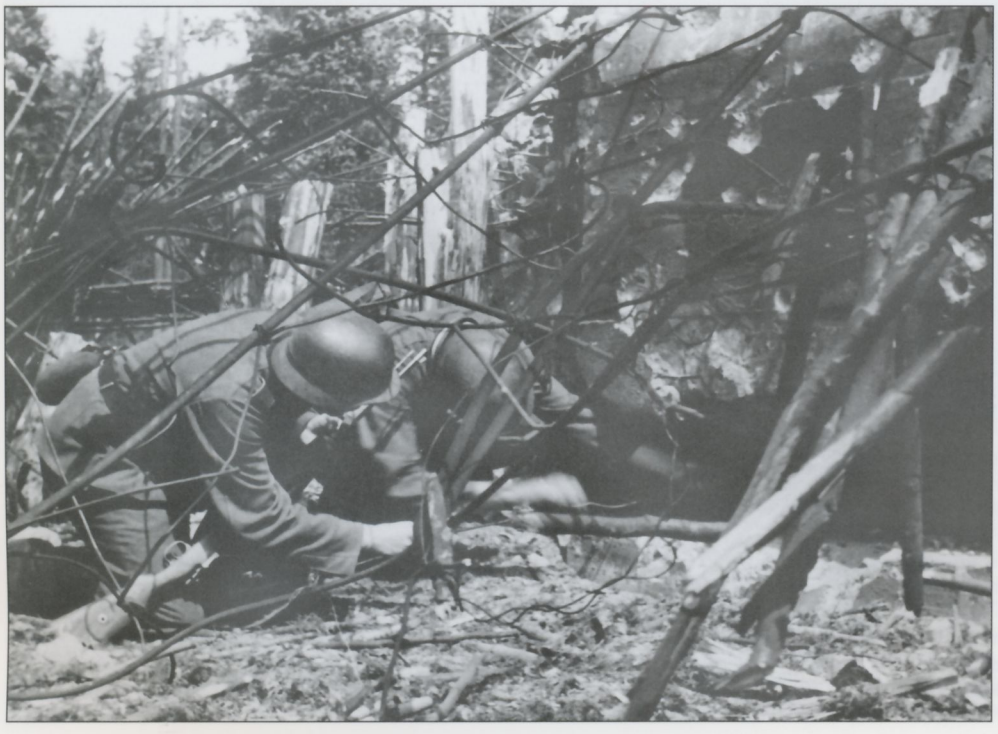
The crew of a 2cm FlaK30 light anti-aircraft gun engages low flying aircraft. This gun, largely replaced by the 2cm FlaK38, remained in use throughout the war. 2cm light FlaK was mainly intended to protect troop formations from air attack and provide close-in air defense of heavy anti-aircraft guns. They were provided both high explosive and armor-piercing ammunition making them suitable for anti-personnel suppressive fire work as well for engaging lightly armored vehicles. As troop strength dwindled, causing depleted infantry units to defend wider frontages, 2cm guns were often assigned to them as effective antipersonnel weapons to break up massed Russian assaults. With a cyclic rate of fire of 280 rounds per minute, these guns were highly valued in this role.

A rifle group (Gruppe), the equivalent to a US squad or a British section, mans a defensive line along a railroad embankment. Each group possessed a 7.92mm MG34 light machine-gun, around which its base of fire was built. The rifle group was divided into two troops (Truppen): a five or six-man rifle troop under the assistant group leader (also known as the troop leader), and the machine-gun troop directly under the group leader. The three-man machine-gun troop could provide covering fire as the rifle troop maneuvered, or it could accompany the rifle troop to give close, direct fire as the tactical situation required. These soldiers are equipped with the web battle pack carrier fastened to the back of their belt support straps to carry their mess kit, shelter cape, and other gear.

Infantrymen board a small inflatable boat, which could carry three or four men. They are going to reconnoitre the far shore before the main body attempts to cross. One of the men aboard the boat is armed with a Czechoslovak 7.92mm vz.26 light machine-gun. Some German units were armed with this weapon in lieu of the MG34 machine-gun, which was in short supply. The Germans designated this weapon the MG26(t) or MG146(j) depending on whether it was obtained from Czechoslovak or Yugoslavian stocks. It was fed by a 30-round box magazine; the man about to board the boat is carrying a container with extra magazines.

Bridge construction pioneers struggle to emplace a steel girder section of a Brückengerät K (bridging equipment "K") pre-fabricated bridge. Depending on the number of sections used, the "K" bridge could span a gap of up to 63 feet without the use of supports. Longer bridges could be constructed by adding timber supports. Without supports a "K" bridge could support 27 tons. They were mainly used to bridge dry gaps such as large gullies or ravines, but the sections could also be used as a pontoon bridge in combination with large inflatable boats. It appears here that a "K" bridge is being laid across a damaged existing bridge to allow its continued use.

A 10.5cm l.FH18 light field howitzer goes into action. The high explosive shell weighed 32.65 pounds and could be fired to a maximum range of 11,678 yards. By late 1942 the 10.5cm howitzer was modified as the l.FH18M and fitted with a muzzle brake allowing a more powerful propellant charge to be used, which in turn increased the range to 13,483 yards. Besides high explosive, other types of projectiles available for these howitzers included: incendiary, illumination, anti-tank hollow-charge, anti-tank discarding sabot, propaganda leaflet and smoke.



These infantrymen are examining a destroyed Russian bunker during the spring of 1942. The Soviets had built large numbers of reinforced concrete machine-gun bunkers and supporting positions on the frontier. German infantrymen and pioneers were able to knock them out with combinations of machine-guns, anti-tank guns, anti-tank rifles, flamethrowers, tank gunfire, hand grenades, and demolition charges. If a particular bunker proved to be difficult to neutralize sometimes artillery pieces were brought forward to fire directly into the embrasure. The twisted latticework of steel rods and heavy gauge wire supported camouflaging materials.

A sentry scans the far tree line for signs of enemy movement. In quiet sectors the forward trenches were manned only by a few sentries while the bulk of rifle platoons remained in heated living bunkers where they slept, ate, mended their clothing, and maintained their weapons and equipment. Planks to support the sides in unstable soil and to prevent it from being collapsed by nearby artillery hits reinforce this fighting trench. Horizontally woven saplings and tree limbs were used for the same purpose.

The troop leader of a 3.7cm Pak36 anti-tank gun searches for enemy armor. He wears a 9mm P38 pistol holster on his left hip and a gas protection cape pouch fastened to the shoulder strap of his gas mask canister. The gunner has a small entrenching tool with attached bayonet in a leather carrier on his left side. They have attached twisted wire around their helmets to secure camouflage materials.

Infantrymen shelter among bomb craters as they pause in their advance. The second man from the left carries a canvas rucksack. By 1942, various types of rucksacks were being issued to infantrymen as the traditional flat backpack was insufficient for carrying the gear and rations soldiers needed when re-supply was erratic.

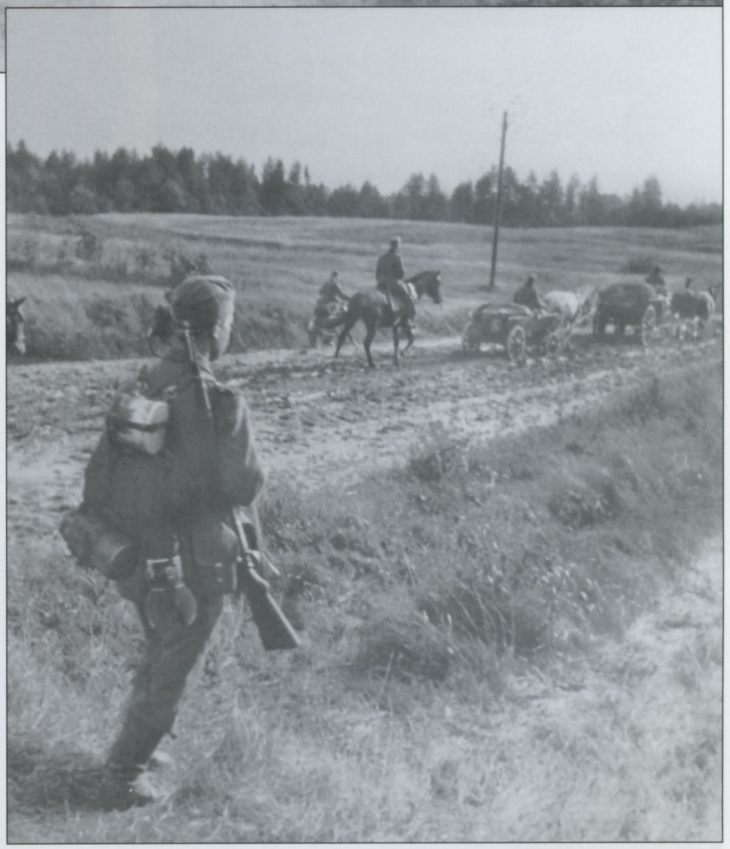
An Unteroffizer (equivalent to a corporal and normally a group leader) examines a map while seated in a Horch light car. It was often difficult to determine a unit's location on the broad flat steppes, which were virtually devoid of landmarks. NCOs were identifiable by the 9mm wide silver or grey braid on their collars and edging of their shoulder straps. These soldiers have inserted cloth scraps in the folded up earflaps of their field caps to protect their necks from the harsh Russian summer heat, which could easily reach 100 degrees.

Infantrymen rush forward under fire during a counterattack in the Kharkov area. The upright man carries a 9mm MP38 or MP40 machine-pistol; he has also lost his entrenching tool. The man to the far right has a Walther 9mm P38 pistol, while the other men have 7.92mm Mauser Kar98k carbines, the standard infantry rifle.

A pair of soldiers cook their rations, augmented by whatever they could forage for themselves from local villages. Besides the mess kit hanging over the fire, they have a "liberated" frying pan. Stews and soups were the most common means of combining and cooking their food. Unlike other fronts on which the Germans fought, food parcels from home were not permitted to be mailed to the Ost Front as space was too limited aboard supply trains. This reduced the amount of food soldiers were able to acquire to supplement their meager rations and also encouraged a lively black market.

The 9mm MP38 and MP40 machine-pistols are considered to be the first modern submachine-guns because of the high use of stampings, plastics, and folding stock. The MP40 used more stampings than its predecessor. This weapon was commonly called a "Schmeisser", which is incorrect as Hugo Schmeisser did not design the weapon; he was merely a subcontractor involved in their manufacture. This is an early production MP40; later production variations had horizontal reinforcing ribs stamped in the side of the magazine housing. With the use of stampings and plastic it was still a heavy weapon, weighing 10.4 pounds with a full magazine. Often group (squad) leaders were issued machine-pistols, but they sometimes armed other infantrymen. This machine-pistol-armed soldier is carrying seven 32-round magazines; one on the weapon and three spares in each of the two magazine pouches. He also has several Stg24 stick hand grenades carried in his belt.

A German infantry division's 27 rifle companies walked into battle, in much the same way as depicted in this photograph. A division's artillery, most of its support elements, as well as its supply and transport were horse-drawn. Some elements were motorized or partly motorized, especially headquarters, reconnaissance, anti-tank, engineer, and signal units. It was seldom that truck transport was available from higher echelons for the movement of men as they were essential for moving ammunition and supplies forward.



A lone rifleman trudges forward, choosing to stay off the muddy and rutted road and out of the way of supply wagons that are moving forward as well. He is armed with a 7.92mm Mauser Kar98k carbine (Karbiner 1898 kurz—short), the standard German rifle. This weapon was derived from the longer M1898 rifle used through World War I, being adopted in 1935. It had a five-round magazine; soldiers typically carried 60 rounds in two three-pocket leather cartridge pouches on their belt front. Each pocket held two five-round stripper (charging) clips. At company, battalion and regimental levels there were supply and baggage trains composed of horse-drawn wagons and carts that were used to carry reserve ammunition, rations, forage, and unit equipment.

This group of Feldgendarmerie question some peasants in southern Russia through the aid of an interrupter. Most Feldgendarmerie were NCOs; a company consisted of four officers, 90 NCOs, and 22 enlisted men. Besides providing traffic control, law enforcement, and collecting prisoners of war, they established initial civil control of occupied communities and conducted counterintelligence duties.

Fully-equipped riflemen rush across a field. The slight slouch indicates they are under inaccurate fire or are expecting to be fired on, although the casual attitude of the man in the background, as well as the position of the photographer, suggest this is a "posed" photo. All are armed with the Kar98k carbine, which weighed 8.8 pounds. This same carbine, in the German 7.92mm caliber, was licence-produced in a number of countries either of identical or slightly varied design. Such captured weapons were often issued to German units and included the Czechoslovak vz.24, Polish wz.29, and Yugoslavian M24 and M29.

Two soldiers lay wire-reinforced wooden trestles across boggy ground to allow others to step from rung to rung, easing their passage. A more substantial wooden footbridge will be laid across the distant stream. Both soldiers are wearing off-white denim fatigue trousers. The trousers were also issued in reed green and were usually worn with a matching jacket of the same general design as the standard tunic.

Assault troops prepare to go forward. The man in the foreground carries a Patronenkasten 41 (cartridge case M1941) for an MG34 machine-gun, seen in the background. The man standing in the center carries an ammunition can, plus a Laufbehälter 34 container for two spare machine-gun barrels; the similar Laufschützer 34 carried only a single spare barrel. The ammunition cans contained either six, 50-round belts (300 rounds) linked together or a single 250-round belt.

Schütze, 93.Infanterie-Division, Heeresgruppe Nord, summer 1941

In 'Operation Barbarossa' (the invasion of the Soviet Union) the uniform and equipment of the German army soldier had changed little since the beginning of the war. Only minor changes had taken place. This private shows one of the most common appearances in the 1941 campaign.

He wears the M35 steel helmet; painted in a rough texture matt slate-grey finish. The helmet now only adorns one decal on the left side (the Wehrmacht eagle & swastika shield) due to regulations. He has been issued with the standard M36 field blouse with its typical dark-green facing collar, decorative army collar M38 Litzen insignia (for all branches) and plain dark-green shoulder straps with white colour piping (waffenfarbe) to indicate infantry. In 1940 shoulder straps were manufactured without regimental numbers. Sewn on the right breast is the national emblem on a dark green base. Partly seen and attached to the collar by three buttons is the collar liner. The pre-war field blouse was made from a greenish shade of field grey quality cloth. The service trouser shown is the new M40 type in basic field grey cloth (although many still wore the older type stone grey service trouser). There was no difference in the cut of these two trousers; from 1940 using basic field-grey cloth was purely an economic measure. His service trousers are tucked into M39 short shaft leather marching boots.

He has been issued the usual rifleman's equipment and weapons; the army enlisted mans leather belt, M1939 infantry leather support straps, two rifle ammunition pouches, small entrenching tool, and S84/98 bayonet with leather frog. Out of view he would have also been issued the M1931 bread bag, M1931 field flask with drinking cup, M31 mess kit and M31 (Zeltbahn) shelter quarter and gasmask in its M1938 metal canister. His weapons comprise of two M1924 stick grenades and the standard Karabiner 98K rifle.

Unteroffizier, 31.Infanterie-Division, Heeresgruppe Mitte, winter 1941-42

The German high command did not envisage having to fight a winter war in Russia and believed that their superior tactics of blitzkrieg would bring a complete collapse and defeat of the Red army. They underestimated the determination of the Soviets to defend their country. As the winter approached the German army was totally unprepared to fight in such harsh conditions.

This army squad leader wears the standard issue winter uniform. It was designed for the milder west European climate and was totally inadequate for the Russian winter of sub-zero temperatures. His M35 steel helmet is covered with a piece of cut down white cloth for snow camouflage, a rubber band secures it to the helmet. Photographic evidence shows that white cloth material (mainly bedding sheets) was used as a means of camouflage in the snow landscape. Some were simple cut down pieces to cover the helmet, others were made like ponchos or long vests. His winter clothing consisted of a woollen toque under his helmet, the M35 greatcoat, and any improvised layers of clothing and thick woollen gloves. If the soldier was fortunate he would acquire a surcoat or guard coat, which had better insulation and improved protection from extreme cold weather.

The M35 greatcoat was the most common winter garment issued in this first Russian winter campaign. This pre war greatcoat with its dark-green collar was a double breasted garment made of high quality woollen content cloth, the colour was a greenish shade of field grey. It had two rows of six buttons and two slanted hip pockets with rounded flaps. On the dark-green shoulder straps with white infantry branch colour piping (waffenfarbe) he also wears bright aluminium tresse trim on his shoulder straps to indicate his rank. Under his greatcoat he wears the M36 field blouse and stone grey service trousers tucked into traditional long shaft leather marching boots.

His primary weapon is the MP40 sub-machine gun, which from 1941 was manufactured in greater numbers, and issued to squad leaders, senior NCOs and front line officers. The usual NCOs equipment is worn, of note he wears a pair of 1st pattern MP39/40 magazine pouches.

SS-Scharführer, SS-Wiking (Motorized) Infanterie-Division, Caucasus, summer 1942

Up to this period of the war, armored reconnaissance troops were issued the SS black panzer wool uniform with golden yellow piping on the shoulder straps. The practicalities of wearing such a uniform in the searing heat of a Russian summer was uncomfortable to say the least. From a camouflage point of view in the field wearing black was not ideal. Formally announced on 1st September 1941, the Waffen-SS brought out a new uniform to address this problem for its reconnaissance crews in armored vehicles.

The two-piece reed green uniform was cut to the same design as the SS panzer uniform. It was lightweight, for the summer heat and made from hardwearing cotton. The color provided better field camouflage for its crewmembers. As loose fitting items they could also be worn over (to help preserve and protect) the black panzer uniform in colder months. On his uniform he has added the usual Waffen-SS insignia and rank insignia. Also attached to the designated buttonhole is the 2nd class iron cross ribbon. Underneath the jacket he wears a grey panzer shirt. The headgear worn is the highly popular reversible (spring/ autumn) camouflage SS field cap. Newly issued in the summer of 1942 it was made of waterproof duck cotton, the same material used for the SS camouflage smocks. He wears the plain tree pattern camouflage spring side outermost.

Armored reconnaissance troops wore the minimum of equipment and the figure reflects this, the Waffen-SS enlisted man's belt with a P38 pistol in its 'hardshell' holster and a pair of general-purpose goggles. He holds an M31 field flask with its drinking cup. Next to his M39 short shaft marching boots is an early type 'jerrycan'; this one was designed to carry water. To easily identify this container's sole purpose a white cross has been painted on both sides.

Gefreiter,
Panzer Grenadier, 8.Panzer-Division, Heeresgruppe Mitte, winter 1942-43

After the bitter experiences of the Wehrmacht's first winter in Russia, a more practical winter uniform was developed due to the inadequacies of the standard issue winter clothing used by the German army. It was introduced in autumn 1942, and consisted of hooded jacket, trousers, mittens, hooded toque and felt winter boots. The material used for the uniform was a padded insulating material with an outer shell water-repellent fabric. The uniform was reversible, a white side for snow camouflage and a grey side for other conditions. It was manufactured in large numbers, however the intentions of the Wehrmacht to clothe all front line troops on the Russian front with this new uniform was an impossible and over ambitious task. Priority issue went to the elite and mobile divisions, many other front line divisions had to face a second winter without this uniform.

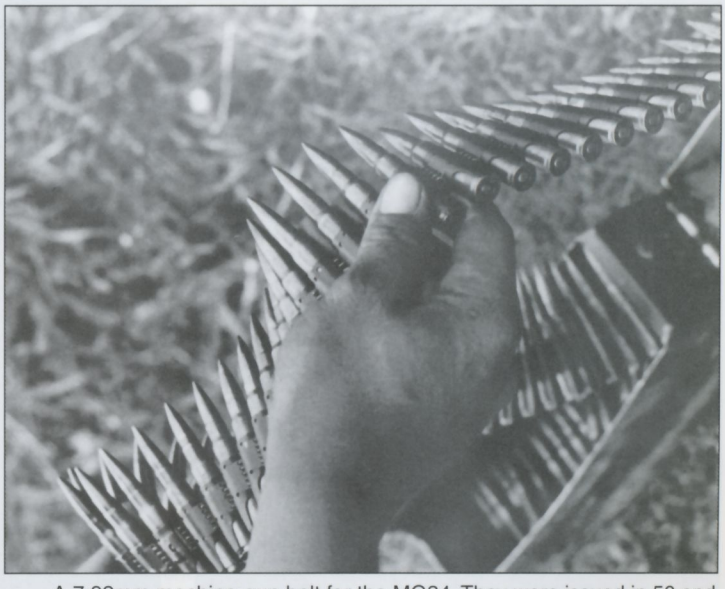
Seen here this panzer grenadier wears a reversible winter suit with the grey side outermost. He has his jacket open slightly exposing a part of the reversible white side. Like many of his comrades he discarded his unpopular winter suit padded toque. He also prefers to wear thick woollen gloves for handling his weapon rather than wearing cumbersome fingerless mittens. As part of his winter gear he wears the felt and leather winter boots. Under this padded uniform is the standard issue wool uniform; in this case (partly seen) he has on an M40 field blouse with its field grey collar. He is also wearing the old style M34 field cap.

As a machine gunner with the multi purpose MG34 he carries the relevant issued equipment for this purpose, the MG34 toolbox, a partly seen P38 pistol in its 'hardshell' holster with a whitewashed M40 steel helmet slung over it, enlisted man's army belt, M31 bread bag, M31 field flask and gasmask in its M1941 longer metal canister. Officially army panzer grenadiers were not issued infantry support straps. Other equipment items not required have been left in the armored transport.

A rifleman is set to throw a Stg24 (Stielgranate 1924) stick hand grenade, commonly known as the "potato masher". This was the standard hand grenade used throughout the war, although there were other models. The TNT explosive charge weighed six ounces. This was a blast grenade with only limited fragmentation effect, although there was a little used slip-on fragmentation collar available. It was armed by unscrewing a cap on the end of the handle, pulling a cord that activated a friction igniter, and thrown to detonate after a 4.5-second delay. Although motion pictures have portrayed German soldiers activating grenades by banging them on their boot heel, helmet, or another solid object, the Germans have never possessed a grenade armed in this manner. This soldier wears a war economy uniform lacking the dark blue-green collar, with the shoulder straps being replaced by field grey types.

An artillery Gefreiter unloads a "Koffer" ("suitcase") wicker container with a 15cm howitzer projectile from a horse-drawn ammunition wagon. A 15cm high explosive projectile weighed 95.7 pounds (43.4 kilograms). Empty wicker ammunition containers were sometimes used by the infantry to construct fighting positions by filling them with earth.

Infantrymen cautiously check the closed gate to a building complex within a Ukrainian town for booby traps as an MG34 machine-gunner looks on. Note that he carries a bayonet; all members of rifle platoons were issued a bayonet (officially designated as a "side-arm") regardless of the weapon they carried. As Partisans became an increasing problem, units in reserve were often tasked with cordoning off villages or sections of towns to conduct searches for them. Besides partisans, they searched for by-passed Soviet soldiers as well as the occasional German deserter.



A 7.92mm machine-gun belt for the MG34. They were issued in 50 and 250-round lengths and any number could be fastened together. The same belt was used with the later MG42. Unlike the US disintegrating metallic-linked belt, the German metallic belt did not break up in individual links when fired. German belts were reusable so crews recovered them, as they sometimes were in short supply. Every fifth round is an armor-piercing-tracer identified by a black bullet tip (faint in this photograph) and a red ring around the primer. German tracers burned red or white.

Along with German troops, a former Soviet Cossack in the service of the German Army examines a captured Soviet T-26 light tank, a derivative of the British 6-ton Vickers. While it is difficult to determine the details, his insignia appears to be the arm badge of the Terek Cossacks. Large numbers of former Soviet troops from numerous ethnic groups fought for the Germans. The 45mm gun-armed Soviet T-26 had first faced German armor during the Spanish Civil War. The T-26 was roughly comparable to the German Pz.Kpfw. II in regards to mobility and protection, although it mounted a larger caliber gun (the Pz.Kpfw. II mounted a 2cm automatic cannon). By the time of the German invasion, the T-26 was outdated and fell easy pray to the better armed Pz.Kpfw. III and IV.

Boots and mud. Every soldier serving on the Eastern Front, regardless of which side he was on, had his own stories of his terrible experiences with mud. It was common for marching boots to be sucked off as they struggled through the clinging, seemingly bottomless seas of mud.

A Feldwebel sporting a motorcyclist's protective suit wears his M30/38 gas mask carrier slung over his chest, a common practice by individuals riding motorized vehicles. Of the many types of goggles issued by the German Army, this model, the Windschutzbrille, was the most common. Attached by a button tab to his Kradmantel is a standard issue "Feldtaschen Lampe" (field pocket flashlight). Below the lens are three sliding knobs for blue, red, or green filters for use during short-range signalling; this feature was especially useful for identifying returning friendly patrols at night.

Troops moving through forested swampland west of Leningrad in 1942. Vast regions of the western and northern Soviet Union were heavily forested. A belt of forested swamp protected Leningrad, extending to Vitebsk with a line running through Kolin, Luszk, and Kiev. To a large extent the effect these vast forests and swamps would have on the Germans was ignored. Fighting in these great expanses of trees and tangled undergrowth was not considered. It was especially not understood that these regions had very few roads, while the few that were available were mere mud tracks. Scattered bands of Soviet troops were often by-passed making such regions ideal hiding places for partisans as they sought to strike German supply columns passing through on the few poor roads.

Two motorcyclists aboard a combination motorcycle point out enemy positions to a lieutenant. The canvas hood placed over the headlight served two purposes. It has a small slit permitting only a narrow beam of light to be emitted for night driving under blackout conditions and it prevented sunlight from reflecting off the lens, thereby attracting the enemy's attention.

In the Ukraine, a local peasant gives an Unteroffizer a lift aboard his horse-drawn cart. When the German Army first marched into the Ukraine they were regarded as liberators; they were quick to create a legion of Ukrainian nationalists recruited from ex-soldiers. The Germans armed these new recruits and trained them to operate as interpreters, guides, and rear security troops. However, the repressive occupation authorities soon turned a great deal of the native population against the Germans. Soviet partisans also sometimes committed atrocities against Ukrainians while wearing German uniforms to further turn them against the invaders.

Reminiscent of the nightmare of World War I, a machine-gunner walks across planks laid over a sea of mud. His MG34 is fitted with a basket drum containing a 50-round belt. Two spare basket drums were carried in a steel carrier (Gurttrommelträger 34), not pictured here. The bipod was normally attached just behind the muzzle, but here it has been moved to a position just forward of the receiver to allow it to be set up on the inner lip of a trench behind the parapet.

An Unteroffizer poses with his horse. The demand for horses was so great that re-mount depots had to provide thousands of replacement horses each week. All across German-occupied Europe, massive drives of horses were made into the Soviet Union.

A conscription depot in southern Russia. A former Soviet soldier, now wearing a German Army uniform, is signing the last of his papers as he prepares to join his unit. Large numbers of former Soviet soldiers volunteered to fight with the Germans against the communists. Besides ethnic units serving within the German Army, thousands of troops served within German units as "Osten-Hilfswillige" (Eastern Auxiliaries, also commonly called "Hiwis"). At first they were employed as laborers and service troops, but as German manpower resources dwindled, Hiwis increasingly served as combat troops fighting alongside German soldiers. Some were eventually promoted to NCO rank.

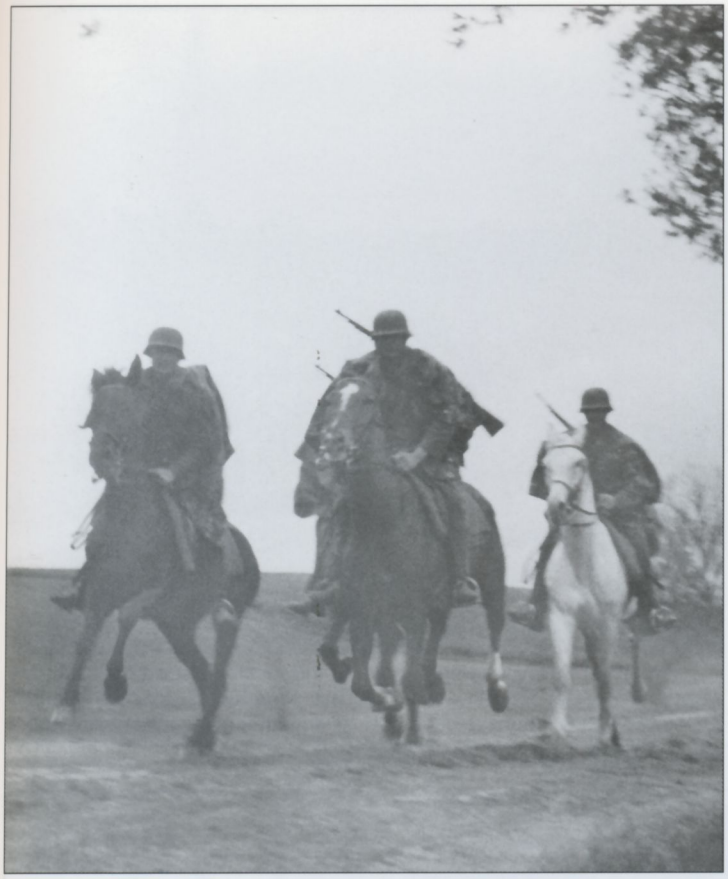
Two soldiers advance towards a typical Russian farmhouse to search it for partisans, and, no doubt to forage for food or anything else of use. The near man has a stick grenade in-hand. Stick grenades could be thrown slightly further and with a bit more accuracy than conventional hand grenades, but required more shipping space.

Mosquitoes were a serious problem in Russian swamps from the Spring through the Autumn. Mosquito-nets worn over the head were provided as is the case with this particular soldier. As he makes his way up a small embankment, he carries a machine-gun ammunition box on the end of a pole to ease its weight.

March Ost!—March east! The average German soldier of the early war years had never experienced such vast open spaces, with huge tracts of land devoid of any habitation. Germany had a high population density, and was covered with a well-developed network of good roads placing villages and towns within just a few kilometres of each other. The typical Russian steppes contained nothing but grass and sunflower-covered plains stretching from horizon to horizon. Due to a lack of visible landmarks, units were often unable to determine precisely where they were; they simply marched east as ordered, looking for the Red Army.

An Unteroffizer group (squad) leader composes a note to send by messenger back to his platoon leader. An Obergefreiter rifleman covers him. The group leader's MP40 machine-pistol lies in the grass before him. On his side he wears an M35 dispatch case as well as an Nb.Hgr39 smoke grenade is in his belt. It was of the same design as the Stg24 grenade, but was a burning-type white phosphorous smoke grenade used for screening and target marking. A broken white band around the head identified it as such.

A file of troops pass through a Russian village as the 6th Army approaches the Volga River and Stalingrad. The MG34 weighed 25.4 pounds and was considered one of the better machine-gun of World War II. In the background additional machine-gunners can be seen. It was common for units to be armed with more machine-guns than authorized by allowance tables, sometimes two per group (squad) rather than the standard one.



These infantrymen have dug rifle firing positions in the sandy soil along the edge of a field. An MG34 machine-gun is set up to the right. Officially referred to as a "Schützenlock für Schützen", the German soldier called them a "Wolfgrabhügel" (wolf's barrow), analogous to a US infantryman's "foxhole".

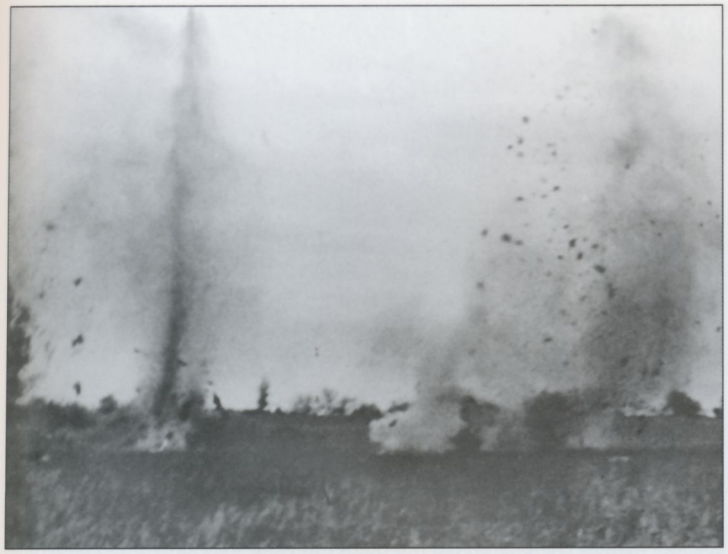
Four horsemen gallop toward the front. In all probability they were not part of a cavalry unit. Only a single cavalry brigade was serving on the Ost Front. In infantry divisions, reconnaissance battalions often had a horse-mounted company employed for scouting. Infantry regiments sometimes still had a horse-mounted platoon for scouting and courier services. Most of these units were finally equipped with bicycles as they proved more practical in modern warfare, required less care, and horses were becoming scarce.

Approaching Stalingrad, infantrymen with bayonets fixed, examine Soviet dugouts in the city's outer defenses. A machine-pistol-armed soldier is checking out another dugout that is off-frame. One of the two soldiers to the right background is carrying a 70cm EmR14 rangefinder for use with heavy machine-guns in the sustained fire role.

A soldier tends to a wounded comrade. He has attached his anti-gas cape pouch to his gasmask canister, a common, but ill-advised practice, since it was found that the tight securing strap damaged the specially-treated anti-gas cape carried within. This photograph also provides a good view of the hobnailed soles of the marching boots.

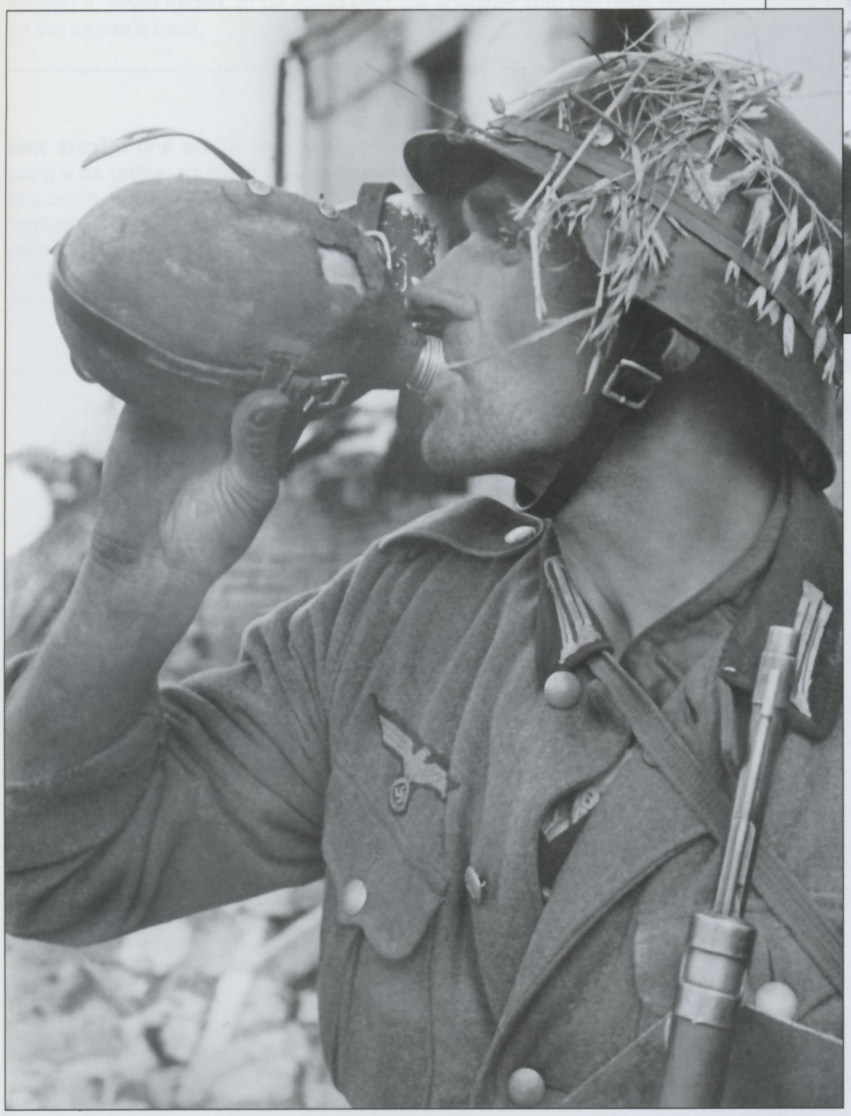
An MG34 machine-gunner rests on the reverse-slope of knoll. Laying beside the dead Soviet soldier in the foreground are two German ammunition cans that have been secured together using a web rifle sling to aid in carrying them over the shoulders.

July, 1942. A heavy Soviet coast defense gun emplacement at Sevastapol on the Crimea is demolished by German pioneers, who apparently failed to allow for a sufficiently long delay fuse. Twelve Soviet Navy-manned batteries protected Sevastopol with 42 guns, which included 120mm, 130mm, 152mm, 203mm, and 254mm pieces. Pictured is what appears to be one of the two "Maxim Gorky" batteries flanking Sevastapol on either side of the harbor, each with two twin gun turrets mounting 305mm (12-inch) guns.



German soldiers take cover from what appear to be Soviet 82mm mortar rounds detonating on the Kerch Peninsula on the Crimea in August 1942. Soldiers in all armies tended to discount the effectiveness of their own mortars, but gave high marks to those of the enemy.

A group leader, armed with an MP40 machine-pistol, scans the distance with 6x30 binoculars. An M35 dispatch case rests on his right hip. The field grey uniform was predominantly green in shade.



A rifleman pauses for a drink from his M31 canteen. The 0.8-liter canteen was issued with a small kidney-shaped drinking cup that was carried upside-down over the canteen's cap and secured by a leather or web strap fastened to the canteen's felt cover. The battered cup can be seen still attached to the securing strap on the canteen's opposite side. Wheat stalks garnish his helmet as camouflage.

Here soldiers probe a Ukrainian marsh in which partisans may have hidden weapons and munitions. They wear their off-white denim drill trousers, which are faster drying than their wool trousers.

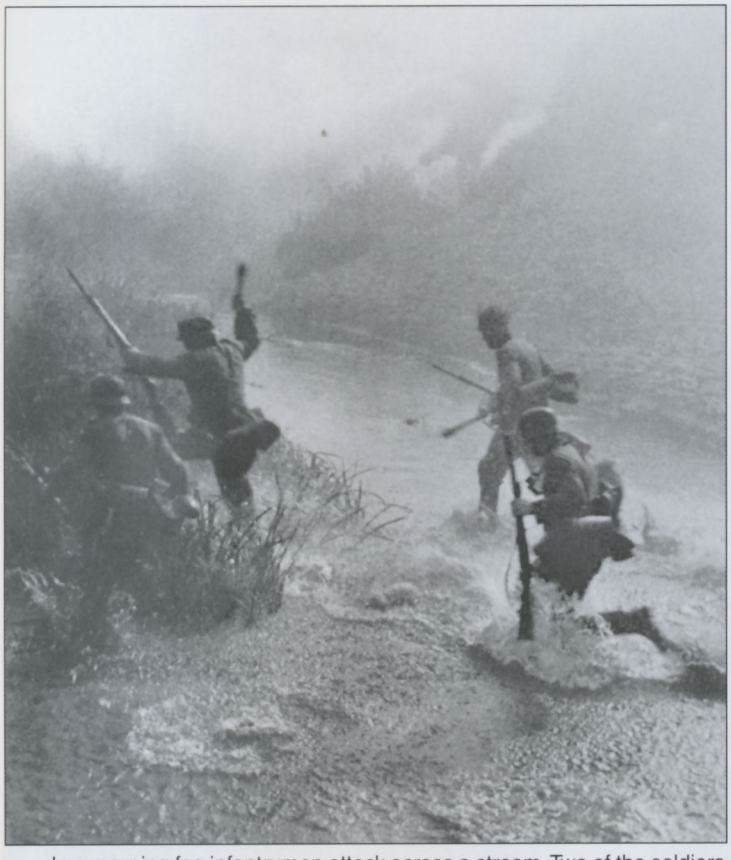
Often Gefreiteren did not bother to wear their grey braid chevrons, but in this unit they do and almost very man is a Gefreiter or Obergefreiter. The standard Gefreiter insignia had dark blue-green backings, but later issue insignia were backed with field grey.

Since casualties among company-level NCOs and officers were often quite high, this MP40-armed Gefreiter might be acting as a group leader. The curled leather tab on the bottom of his 6x30 binoculars allows it to be secured to a tunic button to prevent the binoculars from bouncing and swinging when an individual is running. He does not carry magazine pouches, although he may carry some spare magazines in his tunic's skirt pockets. Machine-pistol magazines, which were easily damaged, were often in short supply.

A German platoon would develop its position by first digging an irregular line of two-man fighting positions and machine-gun nests. When time permitted the positions would be connected by a trench, usually dug a meter or two behind the positions and connected by a short slit trench. Sometimes a trench was dug with firing positions simply incorporated into it. Most of these men wear mosquito head nets, here pulled up, as they appear to be eating. At night they would cover their faces from the swarming pests.

In this photo, an MG34 is fired from its tripod mount. In German service the terms light and heavy machine-guns defined the role and not the weight of the gun, as both roles were filled by the MG34 or the later MG42. Rifle groups had a light machine-gun with a bipod, along with one or two spare barrels. A heavy machine-gun group also had the bipod-fitted machine-gun, but additionally carried a tripod, an optical sight, and additional spare barrels to provide long-range, sustained fire. The pads on the front of the tripod allowed it, when folded, to be slung over the shoulder with the pads resting on the carrier's back.

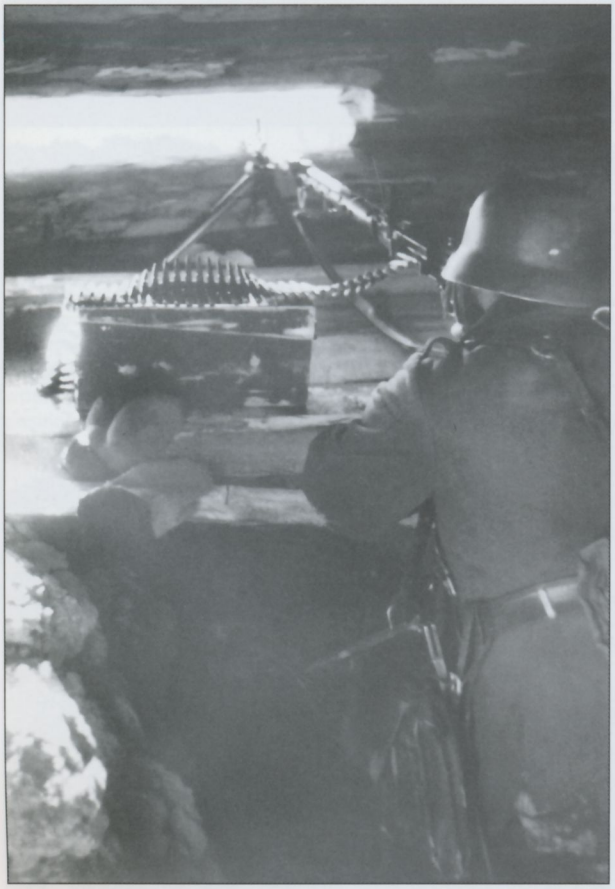
The standard troop bicycle (Truppenfahrrad) could be loaded with the personal equipment normally carried on the individual soldier. The troop bicycle possessed such amenities as an equipment rack over the rear fender, a hand-operated air pump, a wheel-powered generator for the headlight, and a warning bell ringer. On favorable terrain, bicycle-mounted troops could easily cover three or more times the distance of forced-marching foot-soldiers, and arrive less tired. These troops are armed with the older and longer Kar98b, which was actually a rifle-length weapon.



In a morning fog infantrymen attack across a stream. Two of the soldiers carry stick hand grenades. The man furthest to the right has a cup-type rifle grenade launcher attached to the muzzle of his carbine. The launcher could fire a variety of anti-personnel, anti-armor, and other specialized rifle grenades.

Stooping low inside a recently captured Soviet trench near Stalingrad, lightly equipped soldiers move toward the front line. The trench has been typically dug with the bulk of the spoil thrown forward towards the enemy side. A traditional soldier's rule was two shovels-full of soil towards the enemy and one to the rear.

An MG34 crew advances at speed towards the Propaganda Kompanie (PK) photographer. With the bipod extended and the belt loaded, the weapon could be effectively thrown to the ground and placed into operation immediately, with deadly effect.



An MG34 machine-gun in action inside a log bunker. The Germans typically constructed wide firing ports in bunkers to allow a broad field of fire, but they kept the height of the opening narrow to make it more difficult to detect and hit with return fire.

This NCO, probably an Unteroffizer group leader, wears his rank shoulder straps turned upside-down to conceal the conspicuous NCO braid. Note also the band for attaching camouflage materials to his mud-smeared helmet. He wears an M35 dispatch case on his right front and an MP40 magazine pouch on the left. The left pouch included a small pocket for a magazine-loading device. German machine-pistols had 32-round magazines because their pistols had eight-round magazines since before World War I. 9mm ammunition was issued in 16-round cartons, enough to fill two magazines. When machine-pistols were developed, their 32-round magazine capacity allowed them to be filled from two 16-round cartons.

Two generals confer with staff officers. Both wear grey-green leather greatcoats with their collars open revealing the Knight's Cross of the Iron Cross. An officer actively seeking the award of the Knight's Cross, often at the cost of the common soldiers under them, was said to have a "sore throat."

A medical attendant wears the Red Cross Geneva Convention armband on his left sleeve. Regulations specified that it be worn on the right, but it was very commonly worn on the opposite side. Medical personnel, including ambulance drivers, were authorized its wear. The wounded Gefreiter has a braid loop at the base of his shoulder strap indicating he is an Unteroffizer Anwärter (NCO aspirant).

A pair of exhausted soldiers take a cigarette break. Such a state was the norm during combat operations. One man smokes an ersatz tobacco cigarette, (as did the majority of soldiers), while the other seems to be trying to get some rest. Pipes too, were popular.

A group of officers tour frontline positions in southern Russia. It was essential that frontline positions be accurately plotted and many officers personally visited forward unit positions to plot their locations in order to coordinate artillery support. A soldier digging a fighting position takes a break from his work. His equipment is piled on the side of the position.

An Unteroffizier and Obergefreiter hitch a ride in a Ukrainian cart. The Unteroffizer wears the Sanitätsunterpersonel badge on his right cuff. The medical duties of a Sanitätser were secondary and they did not wear a Red Cross armband.

A group leader describes his element's activities to his company commander. The soldier in the left background is armed with a 9mm kurz (short) pistol, a weapon not commonly carried by enlisted men. He may be a member of the company headquarters troop accompanying the commander.

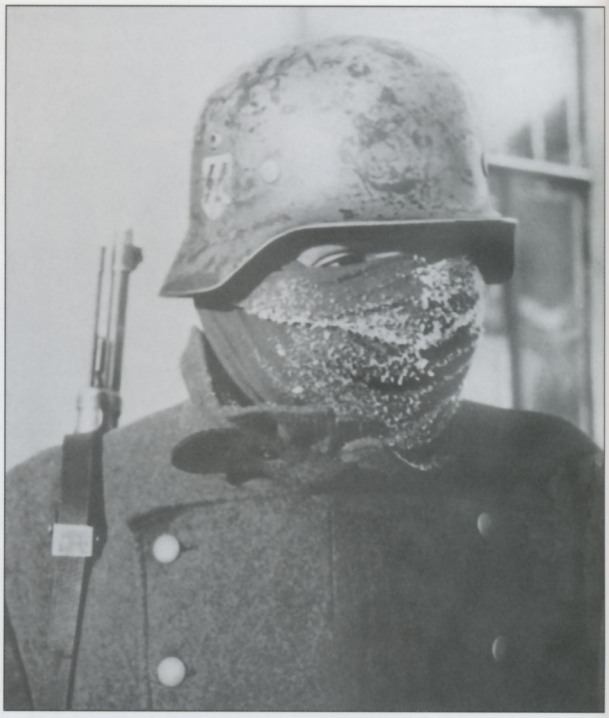
A motorcycle rifleman catches some much needed rest in his sidecar. He wears the Kradmantel protective suit. This waterproof suit was extremely popular, so other vehicle drivers, motorized and horse-drawn, often attempted to acquire them. Trucks often had open cabs, while wagon drivers were completely exposed to the elements.

Soviet soldiers are rousted from a dugout by an MP40-wielding soldier wearing a camouflage shelter cape, as German panzers rumble eastward. Such a position, when hidden among the high grass was difficult to locate. The Russians would carry off the spoil and deposit it in low ground. In the background, seen just over the German soldier's head, is an abandoned Soviet artillery piece.

A gun crew rams home a projectile into the breech of a 15cm s.FH18. One of the ammunition numbers holds the cartridge case at the ready, containing the propellant increments. This howitzer belonged to a motorized unit as indicated by its rubber tires. It was hot work, so the crewmen have removed their wool tunics revealing their collarless white shirts. These shirts were quite conspicuous, so later in the war field grey or light grey shirts were issued.

A gunner keeps lookout beside a 3.7cm Pak36 anti-tank gun. He wears a colored band on his right arm. This was changed on a daily basis as a means of friend-or-foe recognition as the Soviets also wore white snow camouflage over-garments. Often snow camouflage garments, especially the insulated winter suit, were seldom removed. With virtually no opportunities to clean it, this garment became useless as snow camouflage due to its filthy appearance. This position is extremely exposed, while the mud-splattered white sheet does little to effectively conceal the weapon. The top edge of the 3.7cm gun's shield was designed with a scalloped design in order to break up its outline rather than presenting a more easily detected straight edge.

Surrendering Soviet soldiers are interrogated by infantrymen. They are seeking information of immediate tactical value such as the location of other elements of the enemy unit, command post, artillery positions, their unit's strength, and what types of crew-served weapons they possessed. The machine-gunner appears to be examining the Russian's small identity booklet. The white snow camouflage over-shirt is a locally made expedient, as are the camouflage covers on the nearest man's helmet.



A Waffen-SS soldier wears a "toque", a sleeve-like wool tube that was designed to be pulled over the head to protect it and the neck from the bitter cold. Sometimes two or three were worn for extra insulation along with scarves. The black-on-white runic "SS" lightening-bolts are displayed on the side of his helmet. The extremely low temperatures caused weapons to freeze along with most weapon oils and lubricants. It was eventually discovered that sunflower seed oil, plentiful in Russia, was an effective non-freezing lubricant.

A MG34 heavy machine-gun crew await orders to move forward. The man behind the gunner carries the weapon's tripod. Most of the crew wear wool helmet toques in the manner intended. On the gunner's right front is his leather tool and spare parts case. He carries a holstered pistol, most likely a 9mm P38, on his left side. An infantry battalion's machine-gun company had three platoons of four heavy machine-guns each, plus an 8cm mortar platoon.

Soldiers trudge back to their frontline position after making a re-supply run to the company ammunition dump. They carry boxes of 5cm shells for the I.GrW36 light mortar. Each rifle platoon possessed one of these diminutive mortars. They were relatively heavy, complex and costly, with the small shell offering very limited down-range effect, leading to their withdrawal from front-line use by late 1943.

A machine-gunner scans the sky for Soviet aircraft. His MG34, fitted with a 50-round drum magazine and anti-aircraft sights, is set-up on a Dreifuss 34 anti-aircraft tripod mount. The gunner has fastened a non-issue scarf around his head beneath his field cap and wears fur mittens.

A 8cm s.GrW35 heavy mortar troop prepares to load up its equipment and move out. Most of the crew wear field-expedient white cloth helmet covers. Each infantry battalion's machine-gun company possessed a platoon of six 8cm (actually 81mm) mortars. The Soviets used 82mm mortars, which could fire captured German ammunition, but not visa versa. The Germans captured such large numbers of Soviet 82mm mortars that they armed many of their units with them, using both German and captured Soviet ammunition.

These two soldiers have built themselves a shelter using blocks of snow, a common means of construction with readily available materials. This blocked wind and provided sufficient insulation, allowing body heat to warm the interior to a bearable level. The floor was insulated with a thick layer of leaves and pine needles, while the entrance was closed with a pair of shelter halves. Once the snow blocks froze together they provided moderate protection from small shell fragments. German soldiers were not issued sleeping bags, but instead received several wool blankets to make a bedroll. Both soldiers wear reversible winter uniforms introduced just prior to the winter of 1942/43. The insulated uniform was worn over the issue wool field uniform and consisted of a hooded jacket accompanied by trousers. It featured either a camouflage pattern or a monotone mouse grey color on one side, while the reverse side was white for snow camouflage.

A group of officers observe their unit's advance. The second officer from the left is a general, identifiable by the red collar tabs bearing a gold leaf design, which were much different than the usual double collar bars (for example, those on the collar of the officer looking through the periscope). Tunic buttons were gold rather than silver. Their shoulder cords were intertwined gold and silver (other officers' were silver only) on a red backing regardless of branch; their service cap was trimmed with gold piping around the crown, as well as on both edges of the dark blue-green cap band. The caps also consisted of a gold neck cord and cap emblem; these distinctions were silver on other officers' caps. Additionally, Generals wore red stripes on their trouser seams, which consisted of two 33mm-wide stripes with 2mm wide piping between them.

A soldier test-fires a World War One-era 7.92mm MG08/15 light machine-gun. This obsolete weapon was issued to second-line units such as garrison, security, and seacoast defense, which typically required little mobility since they normally occupied static positions. The MG08/15 was an early attempt to provide infantry units with a lighter weapon to accompany them rather than the extremely heavy MG.08 mounted on a sled-type mount. To make the weapon more mobile, a pistol grip and trigger was fitted, a shoulder stock was provided on the rear end of the receiver replacing the double spade grips and thumb trigger, and a crude bipod was fitted, replacing the sled-type mount. However, the relatively narrow spread of the bipod made the weapon prone to toppling over. The riveted fabric belt was entirely different than the metallic belt used with the MG34 and MG42. A double spare barrel case for an MG34 lies between the table's legs indicating that other weapons are being test-fired on this range.

An excellent display of an infantryman's combat equipment. A web battle pack carrier is attached to his support straps (Y-straps) to which his mess kit and shelter quarter are fastened, the latter with greatcoat straps normally used to secure the greatcoat in a roll and attach it to a pack. His canteen is attached to his bread bag, which carried rations as well as small personal items, and his gas mask canister rides atop it. Often the mask itself was discarded and the robust and waterproof canister used to carry personal items the soldier wished to keep dry such as tobacco, letters, and photographs. He is hanging his helmet, fitted with a camouflage net, on his entrenching tool carrier, to which is also attached his bayonet. The bread bag was as much a signature item of the German soldier as was the coalscuttle helmet, hobnailed jackboots, and fluted gas mask canister.

A soldier pops rounds at Soviet troops on the far side of a river with his single-shot 7.92mm Panzerbüchse 39 (PzB39) anti-tank rifle. This heavy weapon, at 27.7 pounds, was obsolete when the war began, but it was used into 1943 until replaced by the Panzerfaust and other new anti-tank weapons. A rifle company had a troop of three of these weapons. While only of 7.92mm caliber, the cartridge case was of a large 13mm calibre, "necked down", giving the bullet a high velocity. In theory, it could penetrate up to 25mm of armor at 300 meters, if it struck at zero degrees. The tiny bullet, while useless against most Soviet tanks, was still effective against light armored vehicles. It was used for sniping, not so much for its long-range accuracy, but because it penetrated cover the enemy might be sheltering behind.

Across the endless Russian steppes a soldier takes a bearing with his march compass, while his group leader, armed with an MP40, scours the horizon with his binoculars. Foliage is being held in place on his helmet by use of rubber bands. Apart from the issue camouflage helmet cover there were numerous methods used by individuals for camouflaging the steel helmet. The use of rubber bands of varied width cut from inner tubes was the most popular means.

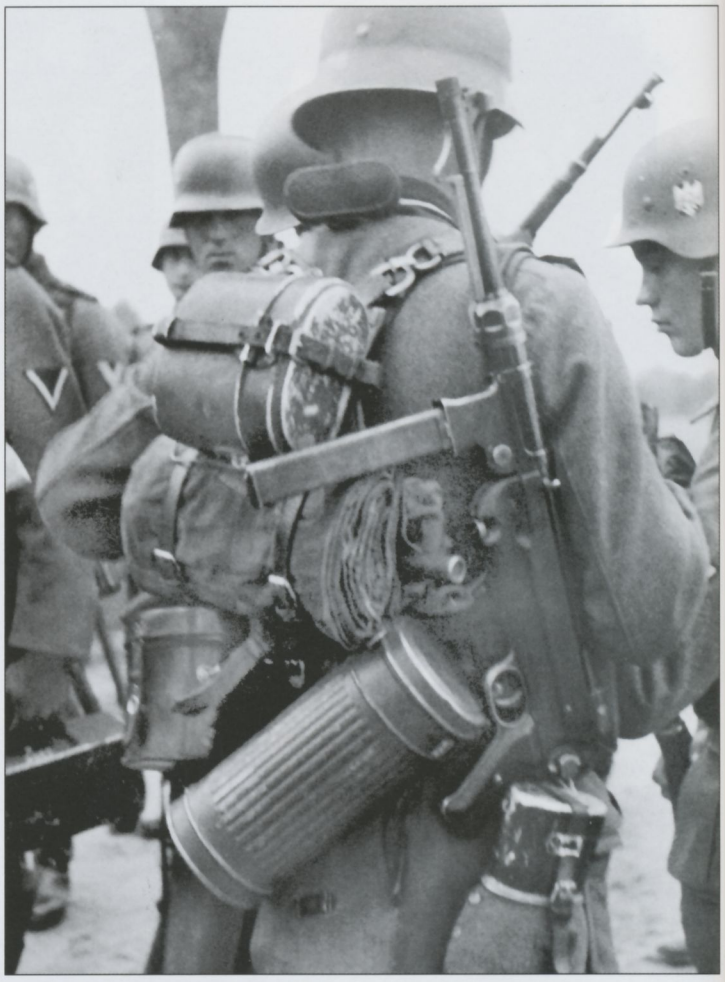
The crew of a 5cm PaK38 anti-tank gun rolls its piece toward a pontoon bridge. The gun was intended to be towed by a light truck or the 1-ton Sd.Kfz.10 half-track tractor, but to allow it to be manhandled more effectively a caster wheel was provided for attachment to the end of the gun's trails. When not in use this wheel was stowed atop the trails or in the towing vehicle. By early 1942, the PaK38 began to replace the 3.7cm PaK36 in regimental anti-tank companies, but (as always) there were never enough of them. Although considered a successful design, this more capable weapon still had difficulty knocking out Soviet T-34 tanks, especially from the front, at longer ranges.

An MG34 heavy machine-gun crew fires on long-range targets using the optical sight provided to heavy machine-guns. Note also the non-disintegrating ammunition belt links on the other side of the receiver. The Lafatte 34 tripod mount was extremely stable being provided with recoil shock absorbers. The machine-gun's shoulder stock could be removed when it was mounted on the tripod. The MG34 had a rate of fire of 900 rounds per minute, which was much higher than most Soviet machine-guns. While the MG42 theoretically replaced the MG34, the latter remained in wide use with production continued to the end of the war.

A mortar crewman carries a 10-round ammunition box for a 5cm l.GrW36 light mortar. Both high-explosive and smoke rounds were available for this little mortar. While most countries issued ammunition in disposable wooden boxes, Germany issued hand grenades, 3.7cm anti-tank gun, 5cm and 8cm mortar, and other ammunition in robust, metal, hinged-lid containers. These were expensive, but provided weapons crews with an effective means of carrying the rounds. The containers were recovered and turned in to the supply system to be refilled. Later in the war, wood, or heavy cardboard boxes were used as an economy measure.

A common expedient method of carrying machine-gun ammunition boxes is demonstrated here. A rifle sling was attached to the 250-round boxes' carrying handles. This allowed the sling to be placed over the shoulders and around the back of the neck, with an ammo can carried on either side for a balanced load. They still had to be held by the hands to keep them from swinging, but the strap helped relieve the cans' considerable weight, which would otherwise have to be fully borne by each arm. In addition, a ready-to-use belt (two linked together 50-round belts) is draped around this heavily-laden man's neck, with the bullets pointing outward to prevent them from digging into the body. The other man has a single-barrel spare barrel carrier slung on his back.

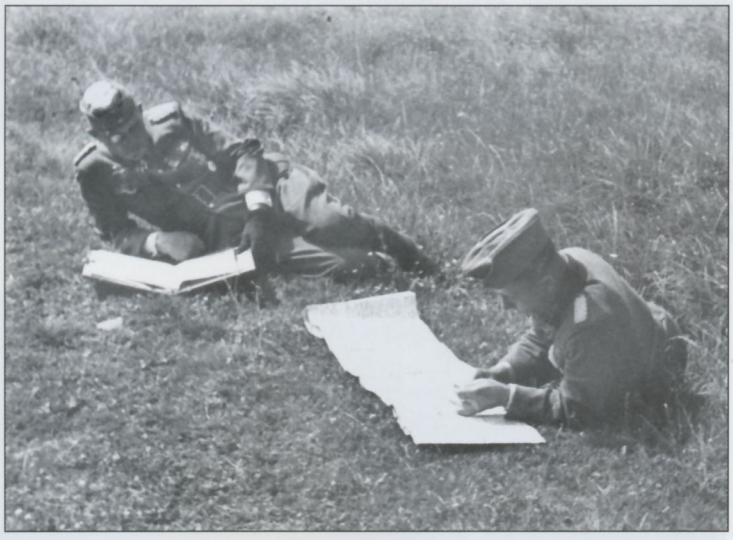
Horse cavalry proved to be a valuable asset on the Ost Front as they were able to cover long distances much more rapidly than foot infantry and could be employed in areas difficult or inaccessible to motorized vehicles. The brown leather M34 saddlebags carried some of the rider's individual equipment, grooming items for the horse and spare horseshoes. Items of combat equipment were mostly carried on the cavalryman himself rather than on the horse as he was expected to have everything he needed on his person when fighting dismounted.



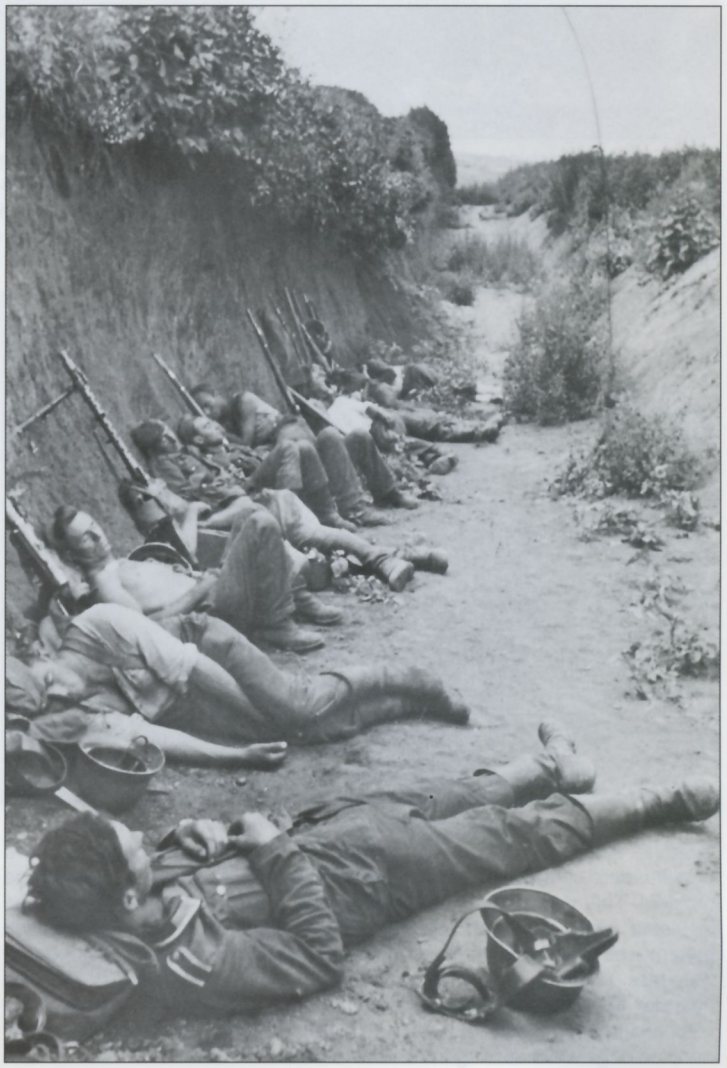
An NCO armed with an MP40 machine-pistol displays his equipment. A tent pole section can be seen beneath his shelter cape. Four soldiers could button their shelter capes together; with each providing a tent pole section, they could erect a somewhat cramped pyramid-shaped shelter. A binocular carrying case is seen between his mess kit and gas mask canister. The oval-shaped item on the back of his collar is a leather eyepiece cover for his binoculars, which was used when it is slung around his neck outside of the protective case.

This photo depicts an MG34 machine-gun team, which was a component of the rifle group. At left, the gunner, an Oberschütze (senior rifleman, a rank immediately below a Gefreiter), who is identified by the four-pointed star on a circular backing on his left arm, carries the MG34 along with the tool and spare parts pouch. The number-two gunner carries most of the ammunition while the number-three carries the spare barrels and another ammunition can (off camera). Both the gunner and the number-two are armed with 9mm pistols. Note the three different helmet camouflage bands (left to right): cord, rubber band, and leather strap.

A group of junior NCOs and soldiers gathers to congratulate an Unteroffizer who was just awarded the Iron Cross 2nd Class. Beside the Iron Cross is the black Wound Badge (Verwundeten-Abzeichen) indicating he has received one or two wounds. A silver badge was awarded for three or four wounds, a gold for five or more.



Two generals relax as they review an operations order. The maps originally issued by the Germans were often outdated and filled with errors. As Soviet maps were captured, the Germans published revised maps or simply reprinted Soviet maps with German annotations overprinted on them. The Luftwaffe provided aerial photographs, which also aided the ground forces in their advance as well as being used to update existing maps. The general's version of the field cap was adorned with gold crown braid and a small gold eagle on the front.



A full-strength rifle group grabs some much-needed rest in an old Soviet anti-tank ditch. The group leader has a holstered 9mm kurz pistol in his helmet. The sloped (right) side of the anti-tank ditch allowed an enemy tank to attempt to negotiate the obstacle, while the vertical left side, on which the defenders would be positioned, was designed to halt the tank.

An MG34 machine-gun troop awaits the order to advance as their group leader searches for enemy movement. They have garnished their helmets with just enough vegetation to break up their distinctive outline. Early model MG34s could be fitted with a 75-round saddle drum magazine (Patronentrommel 34). This was a spring-fed magazine and did not use belted ammunition. It required a special receiver cover with attachments for the magazine and a feed slot. These magazines easily jammed and were difficult to load and maintain, so, MG34s produced after 1940, such as this one, were made without the magazine fittings and feed slot.

Two German officers and an Unteroffizer (left) stand in front of their quarters, along with their canine mascot. The officer in the center wears a non-standard camouflage anorak, possibly custom-made using shelter cape material. This was a common practice. The officer to the right wears the insulated winter suit with the camouflage side facing out. This mottled pattern was known as the water-pattern since it looked water stained and was less common than the more sharply edged splinter-pattern. The quarters were built of rock, timber, and logs, with straw piled over it for camouflage and insulation. As with most soldiers, Germans frequently adopted dogs while serving in Russia.

A German column passes what appears to be a French 25mm SA-L model 1934 anti-tank gun and limber, knocked out by artillery or an air attack as it was being rushed forward. Clothing and materials are scattered about the gun limber by souvenir hunters, scavengers looking for something useful (mainly food), and specialists searching for items of intelligence value such as maps, unit rosters, etc. The passing Hf.7 steel field wagon (Stahlfeldwagen) was an all-metal, rubber-tired utility wagon drawn by two or four horses depending on the load. And the German Army marched deeper and deeper into the Soviet Union…to its eventual doom.

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