

THE ARMORED TRAINS GENERAL STUDY

DAN TEȘCULĂ

Universitatea Babeș-Bolyai Cluj-Napoca
dantescula@yahoo.com

Keywords: Armored trains, Blitzkrieg, Locomotives, Railroads, Static War, Dynamic War

Cuvinte cheie: trenuri blindate, Blitzkrieg, locomotive, război static, război dinamic

The present study focuses on weapon system that has been misplaced and almost completely ignored by the history books. The most probable cause was that the impact of this weapon was not as big as it was on, for example, the first use of the tank. Even so, the Armored Train was an integrative weapon system that most of the developed countries had. This little study brings out to light first of all, the characteristics of this spectacular weapon system as well as its use in the battlefield. During this article, we shall also underline the countries that made use of the armored trains also joined by pictures from the archives.

Introduction

From a historiographical point of view, the documentation regarding the armored train is very scarce, and only a few authors even bothered to bring this weapon to attention. The first real historical approach was made in 1986 by the German professor Wolfgang Sawodny who has dedicated considerable studies regarding the use of German armored trains in World War II¹. Professor Sawodny's works have marked the manifestation of the world's curiosity beyond the German-speaking world. So huge was his success that former German armored train staff appeared, and gave their accounts and descriptions. Thus professor Sawodny wrote the second and the third volume. His works are even today regarded as the most concise studies regarding the armored train. This is why his works play a major role in this study, since other edited sources are not available or have limited access to their content. A few years later, in 1996, at the same editure another German professor, Wilfried Kopenhagen², publishes his little book regarding the armored trains of the Soviet Union. His study starts from the Russian Civil War all the way to the *Patrioticevskaya Voina*³ and beyond. Needless to say he did not use so much archive material since he never travelled to Russia. In fact he himself confesses in the introduction that he based his studies mainly on the articles he found in publications such as *Modelist konstruktor*, or *Technica y Molodezhi*. The first real comprehensive study regarding the armored trains belongs to Stephen Zaloga⁴. It appeared in 2008 at Osprey Military Publishing, the *New Vanguard* series. This small

¹ Sawodny 1989; Sawodny 1990; Sawodny 1991.

² Kopenhagen 1996.

³ The Patriotic War (trad. rus.), is the indigenous historiographical concept that refers to the hard battles of the Eastern Front (1941-1944) in which the Red Army has defeated Nazi Germany. It is the same as the Romanian concept Războiul de Întregire Națională, in reference to the Romanian military campaigns in WW I.

⁴ Zaloga 2008.

study covers the armored train s evolution from the early projects and attempts of 1848 all the way to the first grueling years of the Cold War.

Shortly after the first railroad train has crossed the Stockton-Darlington line on September 1825, the top brass of the British military high command imagined ways to use this new invention in the battlefield. Its primordial purpose would have been, to rapidly deliver supplies and troops anywhere across the battlefield. The idea of developing a weapon system on these trains took a little bit longer. Stephen Zaloga observed that from the moment the railroad appeared, all the way to the early 1900, the European railroads grew and evolved from zero to somewhere in the figure of some 186.500 miles of railroad tracks⁵. This meant that the distances between the important cities had basically vanished. Now trains could take passengers or freight to the destination in less time than it took riding by chariots. This meant that from a military perspective, that troops could be carried to the designated area or battlefield in record time. This also led to another great advantage: the troops could be supplied more efficiently.

In the spirit of the strategy shown above, the Habsburgical Empire was the first country to put in practice the invention and the use of armored trains. At first during the disturbances and severe events of 1848, when the soldiers were embarked on freight flatcars, without a single form of protection and being sent into battle. Even with all its limitations, that *armored train* made an impact⁶. The same train tactic was used by the British and American armies in the American Civil War. It is that war that launched the armored trains into full military use. During the fights around Chattanooga in 1863, General Hooker was able to move his troops, including his general staff from Washington to Bridgeport (1.168 miles) in only seven days⁷. This meant that General Hooker now had *the element of surprise*. Because of that, that train got stuck in the collective memory as *The Chattanooga choo-choo*. The American Civil War also gave birth to the gun wagons. General Robert E. Lee instructed his artillery commanders to build a railway gun wagon. A navy officer placed a 32 inch artillery cannon protected by an armor built from heavy steel plates inclined to 60 degrees. The locomotives used by these carriages were mostly from the *General* class and *Rogers Ketchum and Grosvenor* class because they were the heaviest and the most powerful engines⁸. In Europe, the armored train first saw combat during the Franco-Prussian War (1870-1871), when the *Compagnie du Orleans* constructed gun wagons for their military transport trains. Also, the British had built and made good use of this weapon during the campaigns in Egypt (1882) and India (1886). We also have the armored trains that were present in the Anglo-Boer Wars in Southern Africa (1899-1902). The locomotives were camouflaged with multiple layers of carpets joined together by heavy ropes that made them look like a woman s hair, that s why the soldiers dubbed them *Hairy Mary s*.

Armored trains and World War I: Famous armored trains

At the beginning of the war, none of the belligerent armies planned on using this distinct weapon. However, some of the countries made plans and prototypes of armored railcars and locomotives. Probably the most successful design was the Austro-Hungarian *Panzerzug*. This specific type of armored train is known to have been

⁵ Zaloga 2008, p. 5.

⁶ Sawodny 1989, p. 3.

⁷ Zaloga 2008, p. 5.

⁸ Zaloga 2008, *passim*. For more details about the engines see Popescu 1987, the chapters related to the early american locomotives.

produced in nine different versions⁹. A typical train consisted in a minimal of two railcars armed with machineguns or cannons having in the middle the armored locomotive. Inspired by the successful uses by the English and Russians at the beginning of the war, these *panzerzüge* went into battle in almost all of the battlefronts except for Africa.

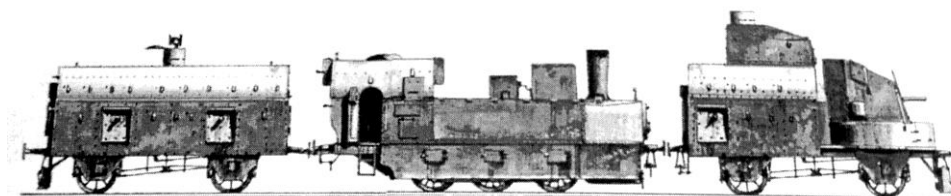


Fig. 1. Theoretical layout of the composition of the famous Austro-Hungarian *Pz Zug II* (After the drawing of Tony Bryan, *apud* Zaloga 2008, p. 9, plate A).

The composition of the Pz. Zug II, for instance, is a simple one having the front railcar fitted with two turreted 70mm guns and an evacuation port in the rear. Next to it, we find the armored locomotive, which is the armored version of a normal MAV 377 series with short smoke funnel. We cannot go forward without mentioning that in Romania only one armored locomotive of this series was captured and used: locomotive number 377.417 was in use for the Romanian Army all the way to 1940¹⁰.

Russia, however, was the first country that produced armored trains on large scale. This happened because of the few and bad roads across the Russian empire. In 1912, the first projects for a armored *bronepoiezd*¹¹ were approved and the construction began on four different versions at the Obkhunov Works. In 1914, they were deployed around the Polish provinces as the 9 th Railway Battalion, taking part in the assault for the Stanislav bridge, and the Koluszki station in late November 1914¹². In the summer of 1915, we find the 3 rd Armored Train Battalion in large use on the Brest-Litovsk defense.

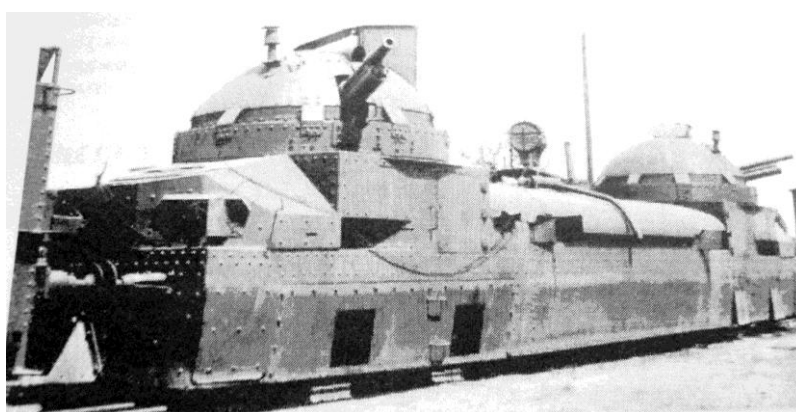


Fig. 2. An anonymous photo depicting the *Zaamurets* railcar in action (After the photo found in Zaloga 2008, p. 16).

⁹ Information recieved from Andrei Berinde.

¹⁰ Lăcrișeanu, Popescu 2007, p. 213.

¹¹ *Bronepoiezd* - train (trad. rus.).

¹² Zaloga 2008, p. 10-11.

Russian high command had long argued that small, self propelled armored rail vehicles would be more versatile than multi-car trains, and in September 1915 the Russian high command authorized the construction of seven to eight small armored machine-gun trolleys as well as a single armored rail-cruiser. And so the most famous armored rail-cruiser of the Tsarist Empire was born. Entering full production in 1916, the *Zaamurets*¹³ was equipped with two Fiat 60 hp. automobile engines with a specially designed transmission which gave the speed of 28-30m/h. The main armament consisted in two turrets armed with the 57mm Nordenfeldt guns. On the lower part it was riddled with machinegun holes and rest-plates for rifles of the infantry that gave the *Zaamurets* a fearsome and unique look¹⁴.

Austro-Hungary has also been making plans for an armored railcar. The inspiration came from the French *automotrice* (a self-propelled passenger car developed in France).

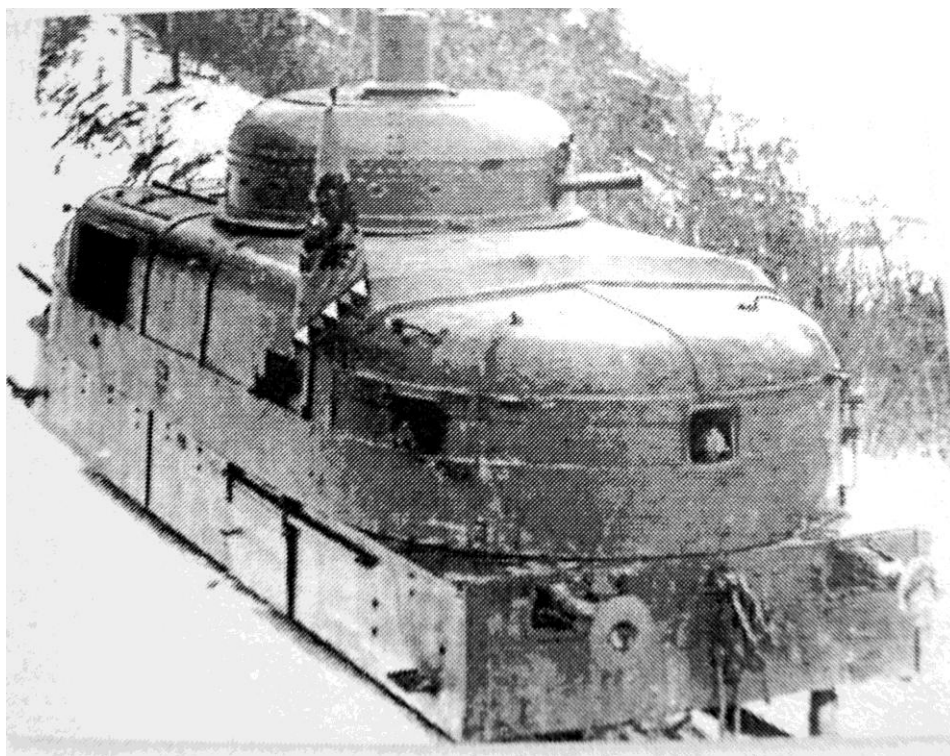


Fig. 3. The only known photo of the *Motorkanonenwagen*, the most futuristic design in terms of armored railcars during the First World War; it was lost in the summer of 1916 on the Romanian front being lost to artillery fire. The author of the photo is unknown (after the photo found in Zaloga 2008, p. 18).

The most futuristic design was the *Motorkannonewagen*, seen in the image above. This self-propelled armored railcar was equipped with Maxim machineguns and a 70mm Skoda turreted gun. According to military intelligence the railcar was lost on the Romanian front during an intense artillery fire in the summer of 1916¹⁵.

¹³ *Zaamurets* - from the Amur region (trad. rus).

¹⁴ Zaloga 2008, p. 13.

¹⁵ Zaloga 2008, passim.

During the Bolshevik Revolution of October 1917, the armored train saw a wider and extended use. It was applied to both to the Bolsheviks as well as to the Mensheviks. Another interesting fact is that captured Czech soldiers who fought for Austro-Hungary enrolled into the white army. They would be known simply as the detachment *Orlik*¹⁶. But there were not only Czech soldiers who volunteered. Workers have been recruited by the Bolsheviks which used their propaganda. Henceforth these workers were assigned to all the major railway sheds and factories: Moscow, Petrograd, Kharkhov, Lugansk, Briansk, Kiev and Tsaritsyno¹⁷. According to soviet sources, quoted by Wilfried Kopenhagen¹⁸, by 1919 the newly-formed Socialist-Federative Republic of Russia (RSFSR) counted almost 103 armored trains that were battle-worthy and ready to be deployed.

During the Russian Civil War armored trains had a major role in just the battle of Tsatitsyn, the future Stalingrad, in October 1918. The main role was to capture and secure key railroad objectives using powerful bombing from their *Putilov* cannons. These were also effective in protecting and covering the advancement of the infantry units.

Armored trains and World War II

In the interwar period the design and production of armored trains basically halted in Western Europe. The main reason was the production costs which were high. The only country that still produced armored trains was Soviet Russia. The designs did not suffer any modification until 1941. Furthermore, the soviet high-command has envisioned the armored trains mission as being by excellence one of support for the troops with artillery and machinegun fire. Protecting the stations and the railway sheds and junctions was the most obvious task to do. As previously accounted, the armored trains played a major role in the Russian Civil War. This led the Red Army commanders to realize that the armored trains are an indispensable weapon system for the army, being usefull in attacking railway junctions, stations and sheds.

The armored train types from Russia were also used during the Chinese Civil War by the warlords that had political and military control over the country. The armored trains came to China by freight trains on a specially created Vladivostok - Beijing line. The Japanese *Kwantung* Army also used Russian armored trains, especially the *Zaamurets*-type railcar¹⁹.

During the 1930 s the German high command has regarded armored trains as being obsolete, surpassed by the development of the tank and aviation²⁰. History proved them right. The war that was now just years away, announced itself as being a dynamic one in which the fast moving motorized units will have a key role. Henceforth the last armored trains were developed in 1929 and 1930²¹. The assignment of these new trains were defensive, to protect and secure the railway stations from the international unrest that was unfolding rapidly during this period. The general composition of these trains consisted in three to five boxcars with layers of track or gravel as a crude form of armor. For the locomotive, the Germans retained two locomotive types: the well-known

¹⁶ *Orlik* – eagle (trad. cze.).

¹⁷ Kopenhagen 1996, p. 7.

¹⁸ Kopenhagen 1996, p. 8.

¹⁹ Zaloga 2008, p. 22-23.

²⁰ Sawodny 1989, p. 5.

²¹ For details see Zaloga 2008, p. 26-27 for more in-depth analysis of the German and Polish armored train development during the interwar period.

Preussische G-10 and the T14. We must mention that the G-10 locomotive is the equivalent of the Romanian 50.100 class locomotives.

It was only in period between July - August 1939, Nazi Germany started production on 7 different armored trains, using the same locomotive types from the previous trains. Only the armored trucks and flatcars differed in the sense that sheets of armor plating were placed in key positions for protection. Czech furniture from the Skoda factories was added for rolling stock as well as in the railcars (the Skoda cannon, turreted or not, was fitted to all the railcars).

On the morning of September 1st 1939, at 04:40, the first belligerent move from Nazi Germany was to capture and hold key railway bridges and stations in the Pomerania Corridor. This was done by sneaking armored trolleys behind enemy lines²². The mission has ended in failure. So to where the early attempts to capture the railway bridges at Dischau.

Also, the armored trains had a major role in the campaign against France. Trains number 23, 24 and 25 fulfilled the role of protection for the supplies that were destined to the fast-moving motorized and tank units. The trains mentioned were decommissioned shortly after the fall of France. The main reason why was the fact that these trains were very slow. The French campaign proved that the impact of the *Blitzkrieg* was immense and this particular weapon was just too slow for this type of tactic²³. Nr. 23 and 25 were reactivated and sent for *testing* in Yugoslavia, where the partisans were already making the railroads unsafe.



Fig. 4. An armored German G-10 locomotive. The author of this photo is anonymous.
Photo credit *Bundesarchiv* (after the photo found in Sawodny 1989, p. 6).

In the early part of 1941 the final layouts for the invasion of the USSR were discussed at the OKW. The plan posed a serious problem: the wide-gauge railroads

²² Zaloga 2008, p. 28.

²³ Sawodny 1989, p. 6.

(1524 mm). The decision was made to build new armored trains with interchangeable wheels. On the 28th of May 1941, the *Oberkommando des Heeres* (OKH) ordered the appropriate refitting for the newly-built trains numbered from 26 to 31. All of them had opened freight cars with minimal protection (trains number 26-29) as well as two (nr. 29-31) or three (nr. 26-28) opened cars that contained captured Renault S-35 (SOMUA) tanks from the French army²⁴. These tanks were basically used as fixed guns mounted on the freight cars, with tank-deployment capability when in need. As for the rolling stock, the *Deutsche Reichsbahn* (DR) preferred the all-dependable G-10 series. An interesting detail is that armored train number 29 had a WR-550 armored diesel locomotive type. At the start of the campaign, the German trains were stationed all along the northern and central fronts. Their main purpose was to protect and supply the troops from the army groups in the region²⁵.

In USSR, tanks were considered a complete novelty. Nevertheless, a tank production was set in the late 1930s by assimilating and building under license the T-26 (imitation of the more famous Vickers tank) and the BT series tanks (imitations of the American Christie tank). The commanders of the Red Army have seriously neglected the use and production of tanks. In change they predicted a great future for the armored trains. In conformity with their view, the armored train had two major roles: an offensive and a defensive role. In the offensive role the trains must operate in the frontlines collaborating and supporting infantry units that were in the offensive. Transporting and rapidly deploying the troops to battle was another big role. Wilfried Kopenhagen suggests that up to 90 soldiers could fit into an armored train²⁶. In the case of a retreating enemy, armored trains were supposed to cooperate with the cavalry units and together with them, they had the task of stopping and preventing the enemy to regroup or to dig in. As a defensive weapon system, the armored train's role was to protect and defend the railway stations and sheds, also providing heavy artillery fire in support of the besieged friendly forces²⁷.

The soviet high-command has divided the armored trains into battalions with 2-3 units and the battalions were grouped into armored train regiments and were sent all along the frontlines. As the first battles from the beginning of the German offensive, the soviets quickly realized that one of the main advantages that the Wehrmacht possessed was the considerable number of dive-bombers, the famous JU-87 *Stuka*. Henceforth the order was given to come with a solution to fit AA guns on the armored cars and locomotives. The newest train, the *bronepoyezd* 35 (BP-35) was the first to have AA guns mounted on. But it was the NKPS-42 train that had encompassed a whole new AA system. This was a crude and simple one: 3-4 Maxim machineguns were linked to only one trigger group, these anti-aircraft guns were mounted on the artillery turrets.

²⁴ Sawodny 1989, passim.

²⁵ Sawodny 1989, p. 7-8.

²⁶ Kopenhagen 1996, p. 11.

²⁷ Kopenhagen 1996, passim.

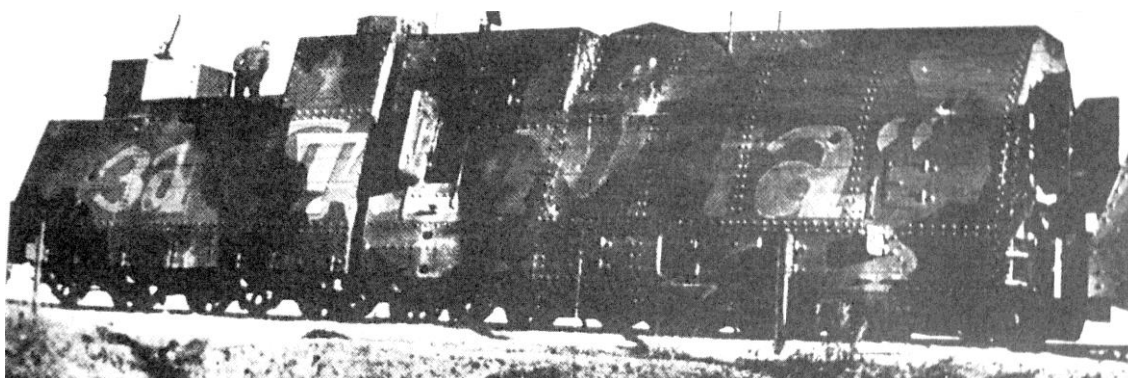


Fig. 5. An anonymous depiction of a soviet armored locomotive. It is unclear to which armored train it belonged. Please note the 37 mm AA gun found on the back of the tender. Also, across the locomotive one can read *Za Stalina* (For Stalin) (after the photo from Copenhagen 1996, p. 12).

Probably the most successful design of a soviet armored train was the BP-43. This train consisted in four security cars, four artillery cars, two cars equipped with anti-aircraft weapons, and a PR-43 locomotive (see the image above) which later was converted to the famous OV series. The loco was equipped with speaking tubes, which stretched all along the train and consisted in metal pipes and rubber tubes that linked up the commander to the machinists and each car's commanders²⁸.

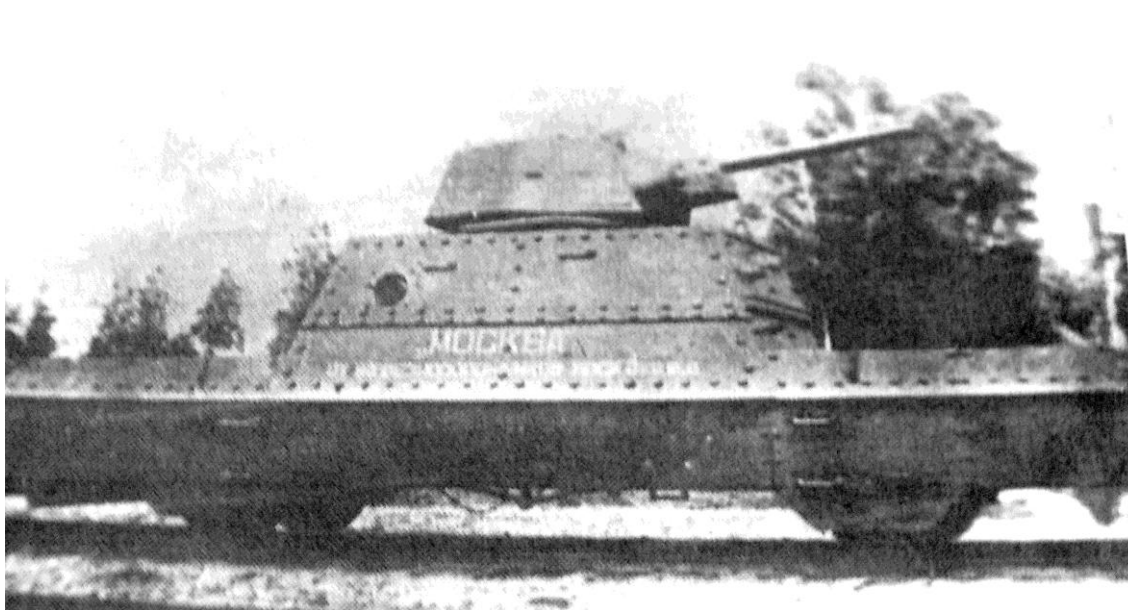


Fig. 6. The photo shows an example of an artillery car from the BP-43, fitted with DT machineguns and the turret of the famous T-34/75 tank. This photo is from Kopenhagens personal collection (after the photo from Copenhagen 1996, p. 17).

Mounted on each fully armored artillery cars was the turret of the world's most famous soviet tank, a T-34/76. The turret was armed with the F-34 cannon and on the

²⁸ Copenhagen 1996, p. 16.

sides on the middle part, where the infantry was housed, the car possessed holes in which they fitted several DT 7, 62 caliber machineguns. After the battle of Stalingrad, this train design became the standard design for all soviet armored trains²⁹. One such train is now preserved at the Odessa History Museum. Not all of them had T-34 turrets. Other design variations had other tank type turrets like in the image depicted below.

Soviet trains bared not only numbers, like their German counterparts, but also bared famous names of communist resemblance (for example *Krasnaya Zvezda*, *Kosma Minin*, *Victory or Death*, etc.) during the battles in the Bielorrussian forests, soviet commanders discovered the great advantage of the strong firepower of the big artillery cars that these trains carried. The order was given to build new armored cars that would be fitted not only with AA guns, but also could incorporate the famous *Katyusha* rocket system. This particular train composition was found in the armored train called *Kosma Minin*³⁰.

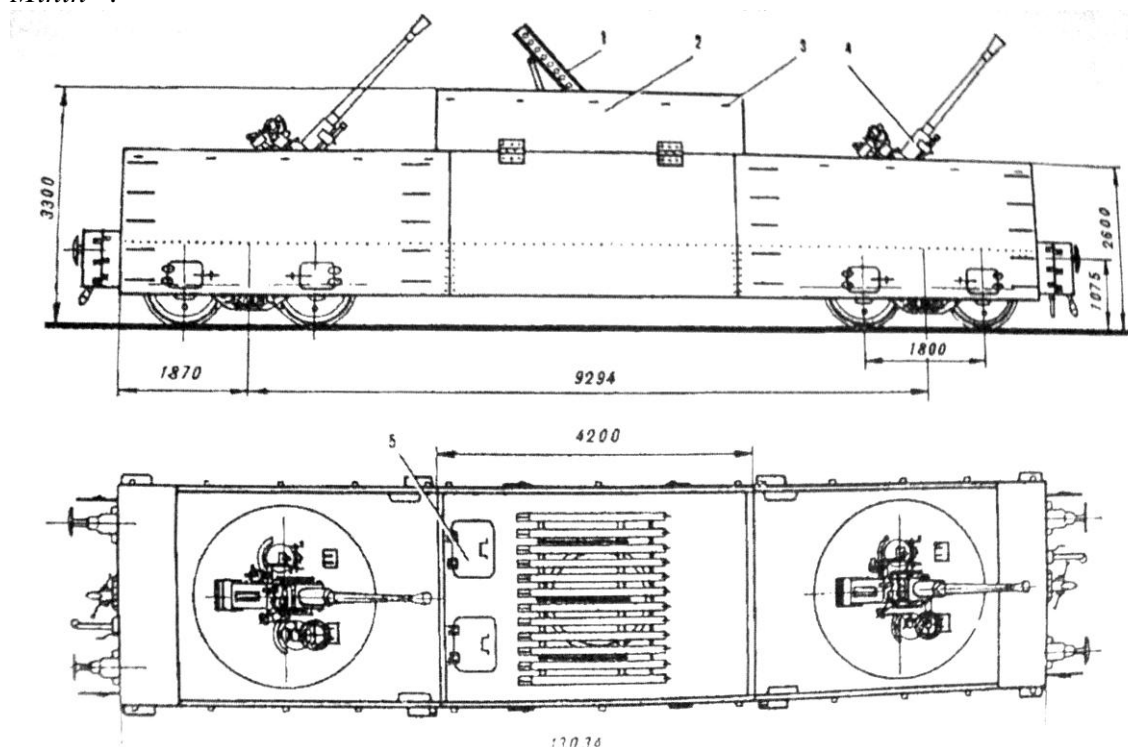


Fig. 7. Anonymous drawings from *Modelist Konstruktor*, February 1980, which depict an example of an armored wagon fitted with anti-aircraft weapons and the *Katyusha* rocket launch system (after the photo from Copenhagen 1996, p. 37).

The decline and the end of armored trains

Needless to say, during the harsh and brutal campaigns of the Second World War the armored train has evolved very little, in the sense that the armed forces of the belligerent countries tried to adapt the armored trains from a static war (like WW I) to a dynamic one. New types emerged in 1944 but only to be placed around stations and sheds. Sadly, the armored trains met a steady and constant decline. The main reason was, as I mentioned earlier, the development of tanks and aircraft, which took warfare

²⁹ Copenhagen 1996, p. 17.

³⁰ Copenhagen 1996, p. 36.

to a different level. The main producers of this type of weapon were Germany and the USSR. Their military doctrine had special and key roles for them, whether we speak of offensive role or a defensive role. The general role of an armored train during the Second World War was eminently defensive, being placed around railway stations and sheds. The slow movement was the main reason why this happened. Still, the Soviet Union made the best use of these trains during the war. Most of them today lay exposed in museums and railway sheds all across Russia, Byelorussia or Ukraine. As a final conclusion we can safely say that the armored train was a formidable and very much a useful military weapon. It did not change the course of war, but it had a significant contribution to the war effort. Invented in the 19th century, the armored train met its finale in the grueling years that followed the Second World War.

Bibliografie

- | | |
|--------------------------|--|
| Kopenhagen 1996 | – W. Kopenhagen, <i>Armoured trains of the Soviet Union</i> , Pennsylvania, 1996. |
| Lăcrișeanu, Popescu 2007 | – Ș. Lăcrișeanu, I. Popescu, <i>Istoricul Tracțiunii Feroviare din România (The History of the Romanian Railway Traction)</i> , vol. 3, București, 2007. |
| Popescu 1987 | – I. Popescu, <i>Căi ferate, transporturi clasice și moderne (Railroads, Classic and Modern Transports)</i> , București, 1987. |
| Sawodny 1989 | – W. Sawodny, <i>German Armored Trains in World War II</i> , vol. 1, Pennsylvania, 1989. |
| Sawodny 1990 | – W. Sawodny, <i>German Armored Trains in World War II</i> , vol. 2, Pennsylvania, 1990. |
| Sawodny 1991 | – W. Sawodny, <i>German Armored Trains on the Russian Front, 1941-1944</i> , Pennsylvania, 1991. |
| Zaloga 2008 | – S. J. Zaloga, <i>Armored Trains</i> , Oxford, 2008. |

Trenuri blindate. Studiu general

Rezumat

Prezentul studiu este focusat pe o armă uitată și aproape complet ignorată de cărțile de istorie. Cauza cea mai probabilă a fost faptul că impactul acestei arme nu a fost la fel de mare precum la apariția tancului spre exemplu. Chiar și așa trenul blindat, a fost un sistem militar integrativ pe care majoritatea țărilor dezvoltate. Acest mic studiu aduce la lumină în primul rând caracteristicile acestei arme spectaculoase precum și utilizarea sa pe câmpul de luptă. În cadrul acestui articol vom identifica de asemenea țările ce au utilizat trenurile blindate, însoțite, de asemenea de imagini de arhivă.

Lista ilustrațiilor

Fig. 1. Compunerea teoretică a celebrului *Pz. Zug II* (După desenul lui Tony Bryan, apud. Zaloga 2008, p. 9, planșa A).

Fig. 2. O fotografie anonimă înfățișând un automotor tip *Zaamurets* în acțiune (după fotografia din Zaloga 2008, p. 16).

Fig. 3. Unica fotografie cunoscută a automotorului austro-ungar *Motorkannonenwagen*, cel mai futurist proiect în materie de automotoare blindate din Primul Război Mondial; a fost distrus în vara anului 1916 pe frontul românesc, de către focuri de artilerie. Autorul fotografiei este necunoscut (după fotografia găsită în Zaloga 2008, p. 18).

Fig. 4. O locomotivă germană de tipul G-10. Autorul fotografiei este anonim. Credit foto *Bundesarchiv* (după fotografia din Sawodny 1989, p. 6).

Fig. 5. O fotografie anonimă reprezentând o locomotivă blindată sovietică. Nu ne este clar cărui tren blindat aparține. Observați, vă rog, arma antiaeriană de 37mm din spatele tenderului. De asemenea. Pe lungimea ei se poate citi *Za Stalina! (Pentru Stalin!)*, (după fotografia din Kopnhagen 1996, p. 12).

Fig. 6. Această imagine înfățișează un exemplu de vagon de artilerie din cadrul trenului blindat BP-43, dotat cu mitraliere DT și turelă a faimosului tanc T-34/75. Această fotografie este din colecția personală a domnului Kopnhagen (după fotografia din Kopnhagen 1996, p. 17).

Fig. 7. Desene anonime din revista *Modelist Konstruktor*, februarie 1980, ce înfățișează un exemplu de vagon blindat dotat cu arme antiaeriene precum și lansatorul de rachete *Katiușa* (după fotografia din Kopnhagen 1996, p. 37).