

DEVELOPMENT OF THE ROMANIAN WEAPONS INDUSTRY

*Engineer Iulian TOADER, Ph.D Candidate**

Abstract: *The development of the armaments industry in Romania was a long process that experienced periods of progress and regression as a result of internal and external causes. The development process of this industry began after the Decree of Prince Alexandru Ioan Cuza, of August 26, 1861, by which the Directorate of Artillery Material Establishments for the manufacture of gunpowder was established. This directorate owned: the Powder Factory, the Pyrotechnics and the Army Construction Arsenal. At the end of August 1915, a new Pyrotechnics was established next to the old one. After the First World War, two new construction arsenals were built, armaments in Sibiu and Roman. In 1935, the development of an endowment program began for the reorganization and modernization of existing factories and the establishment of new armaments factories. Before World War II, the Reșița Factories manufactured anti-aircraft (AA) guns and 120 mm howitzers, and the Astra Brașov Factories also manufactured AA guns. The Concordia Ploiești Factories manufactured anti-tank guns and ammunition. The Copșa Mică Factories produced machine guns and cartridges. Other factories manufactured grenades, pistols and warheads. The Malaxa Factories manufactured warheads, artillery shells and tracks. In 1923, the first aeronautical factory was established, and later other aircraft and warship factories were established. But after 1947, with the help of the USSR, new factories were established and old ones were modernized for the manufacture of weapons and ammunition. After the invasion of Czechoslovakia (after 1968) Romania began to manufacture weapons under Romanian license, including tanks.*

Keywords: *weapons, industry, history, military capabilities, modernization, Romania.*

DOI [10.56082/annalsarscimilit.2025.1.92](https://doi.org/10.56082/annalsarscimilit.2025.1.92)

The Romanian armaments industry was established on August 26, 1861 by the decree of Prince Alexandru Ioan Cuza (based on a report prepared by the Minister of War Ion Ghica) which provided for the establishment of the "Directorate of Artillery Material Establishments"¹.

Due to the arms race of the interwar period, the Romanian arms industry was heavily invested in. At the end of World War II, the Kingdom of Romania was able to manufacture firearms, anti-tank, field and anti-aircraft guns, fighter aircraft, military ships and ammunition. The war factories were dismantled at the end of the war due to the provisions of the

* "CAROL I" National Defense University, Doctoral School, email: iuliantoader@yahoo.com.

¹ Nestorescu Valerian, *File din trecutul artileriei române moderne*, Militară Publishing House, Bucharest, 1972.

Paris Peace Treaty of 1947. After 1950, the arms factories were re-established, but Romania remained dependent on imports of arms and ammunition from the USSR. The modernization process of the arms industry was accelerated after 1968. The authorities in Bucharest requested manufacturing licenses, but the products manufactured in Romania had a higher manufacturing cost due to outdated technology and were at least a generation behind those manufactured in the USSR. In the late 1980s, the economic crisis exacerbated the problems of the defense industry, and at the political level the authorities opposed the increase in military spending.

After the 1990s, the arms industry entered a process of reform, but continued to bring losses to the Romanian state budget; over 90% of production being destined for export².

During the Union of the Principalities, in Wallachia and Moldavia there were only powder factories where the gunpowder needed by the army was manufactured. These rudimentary equipped establishments were not capable of efficiently supplying a modern army. In 1860, the Minister of War, General Ioan Emanoil Florescu, decided to send artillery captain Enric Herkt to Belgium, to an armaments factory in Antwerp, to study the ammunition manufacturing process, with the aim of establishing a similar factory in the United Principalities³.

In 1861, he returned from Belgium with a project regarding the construction of a capsule factory, approved by Prince Cuza, who decided to establish the "Directorate of Artillery Material Establishments". Major Herkt served as director of this institution. On November 23, 1861, Alexandru Ioan Cuza approved the construction of the Directorate of Artillery Material Establishments and its organization into three factories: Pyrotechnics, the Army Construction Arsenal and the Powder Factory.

The Pyrotechnics and the Arsenal were moved to Dealul Spirii because a barracks was established at Malmaison. The powder factory was established in Târgușor, near Ploiești, where a powder factory was already located. In 1862, when Prince Cuza visited the armament factories in Dealul Spirii, metal tubes were manufactured here, cartridges and projectiles, shrapnel and fireworks were loaded. In October of the same year, two boilers were purchased from Belgium for the construction of a "Manufacture of Arms" (factory of portable infantry weapons). Major Herkt was sent back to Belgium to study the manufacturing process. Returning to the country from the Manufacture of Arms in Liège, Herkt also purchased the necessary machinery for the mass production of portable weapons. In 1865, the manufacture of rifle bullets was carried out automatically.

² Romulus Cristea, „Tunurile Romarm trag în bugetul de stat”, *România Liberă*, 5.12. 2011.

³ *Istoria artileriei române*. Militară Publishing House, Bucharest, 1977.

Until the War of Independence (1877), the armament factories were modernized and reorganized according to the trends of the time (internal transport installations "Decauville", hot water installations, boilers and steam engines). The modernization process continued after the war, but the factories were faced with a significant shortage of qualified personnel. It was not until 1892 that the Army Pyrotechnics was fully operational. Two years later, the first machine that produced electricity was purchased to illuminate some sections. On May 1, 1896, a Smokeless Powder Factory was established in Dudești, near Bucharest.

Near the entry into the war, on August 31, 1915, the Council of Ministers established a new pyrotechnics factory next to the old one. The new factory, also equipped with a foundry, was to produce 500,000 cartridges, 7,000 projectiles and 70 tons of brass daily. At the time of the entry into the war, the new pyrotechnics were partially operational. However, the Army Pyrotechnics could produce 550,000 elements of the 1893 model cartridge daily and load 1.8 million cartridges. Simultaneously, it could manufacture 50,000 cartridges for the 1879 model rifle, 100,000 cartridges for the 1912 Steyr semi-automatic pistol, 30,000 cartridges for the 1896 model revolver, 2,500 cartridge tubes and artillery warheads each. Since 1913, the single projectile for the 75 mm field gun model 1904 and the projectile for the 150 mm heavy howitzer were assimilated into production. Cast iron projectiles loaded with black powder were replaced by steel projectiles with high explosives.

During the First World War, the Arsenal, Pyrotechnics and Powder Works moved to Moldova. Production was affected due to the lack of raw materials, qualified personnel and some abandoned equipment in Bucharest.

As for warships, a small repair workshop was established in Brăila in 1864. It was moved in 1867 to Galați, where the Naval Arsenal was built. Initially, barges and sloops were built, and in 1907 monitors manufactured in Trieste in the Austro-Hungarian Empire were assembled. The aeronautical industry in Romania was established with Order no. 7925/November 5, 1909, which ordered the Army Construction Arsenal in Bucharest to build an airplane under the supervision of Aurel Vlaicu.

After World War I, the country's armament factories were mainly engaged in the reconditioning and repair of the armament and ammunition in the arsenal. Two new construction arsenals were built in Sibiu and Roman. The Army Pyrotechnics reconditioned over 5.6 million projectiles and manufactured approximately one billion cartridges, being supplied by the Gunpowder Factory.

The "Škoda Affair" scandal was a turning point that, although it further delayed the modernization of the army, led to the massive development of the Romanian defense industry. An endowment program was launched in 1935. It included both the reorganization and

modernization of existing factories and the establishment of new armament factories. Cannons, portable infantry weapons, ammunition, caissons and fore-ends for artillery pieces, logistics carriages, and optical equipment were to be manufactured in the Kingdom of Romania under the supervision and guidance of the Technical Inspectorate of the Army.

As a result, before World War II, the Reșița Factories manufactured under license Vickers-Reșița 75 mm anti-aircraft guns (during the war, the Reșița Model 1943 anti-tank guns of the 75 mm caliber were also manufactured, as well as the Reșița Model 1942 120 mm cannons). The Astra-Brașov Factories manufactured under license Rheinmetall Model 1939 37 mm automatic anti-aircraft guns and some components of the Vickers-Reșița 75 mm anti-aircraft gun. The Concordia Factories in Ploiești manufactured under license Schneider-Concordia 47 mm anti-tank guns and the respective ammunition. The Voina Plants in Brașov were responsible for the production of the 60 mm Model 1935 and 81.4 mm Model 1927/31 Brandt cannons and their ammunition. The Copșa Mică-Cugir Plants manufactured ZB vz. 30 submachine guns and cartridges under license (during the war, Orița submachine guns were also manufactured). The Army Arsenal manufactured grenades and projectile bodies, and the Pyrotehnia dealt with grenades and cartridges. The Mârșa Plants in Sibiu manufactured grenades and warheads, the Mărgineanca Plants manufactured grenades, warheads and projectile bodies, and the Titan-Nădrag-Calan Plants manufactured grenades and projectile bodies. The Malaxa Plants manufactured warheads and artillery bodies, and the Renault UE tracked vehicles, manufactured in France. The Costinescu factories in Sinaia supplied the army with anti-tank ammunition and projectile bodies, and the Lemaître, Wolff, Schell and Vulcan factories in Bucharest provided projectile bodies and some repairs. Explosives and powders were manufactured by the Army Powder Factory and the Explosives Factory.

The production of caissons, fore-trains and carriages was distributed to the Semănătoarea factories in Craiova, Concordia in Ploiești, Riger and Fabricius in Sibiu, Fichet, Lemaître, Wolff and Malaxa in Bucharest, Schell in Brașov, to some workshops in Petroșani, Reșița, as well as to the workshops of the Romanian-American Factory (which also assembled Ford trucks) and the Romanian Steaua. There were plans and intentions for the production of the vz. 24 rifles and the ZB vz. 53 heavy machine guns, but these did not materialize. Although the Malaxa Plants acquired the license to produce the R-1 tankette, it was never manufactured. Plans for a Renault tank factory were also abandoned. The Malaxa and Ford-Romanian plants could not manufacture vehicles without imported parts, as production of the Malaxa track and Ford trucks had been halted during the war. Prototypes of an armored car and an artillery tractor were built in Reșița, but these did not enter production. The zero series of the Mareșal tank destroyer, located in

the Rogifer plants (former Malaxa Plants), was confiscated by the USSR after August 23, 1944. The first aeronautical factory was established in 1923, and was called SET (Societatea pentru Exploataři Tehnice). Later, other aircraft factories were established: IAR Brașov in 1925 and ICAR in 1932. The army modernization program started in 1935 provided for the production of fighter aircraft in the country. Monthly aircraft production remained at a very low level due to parts imported from France, Italy and, later, Germany.

The construction of warships had the lowest priority in the 1935 rearmament program. As a result, only the minelayer NMS Amiral Murgescu was built at the Galați Naval Shipyard and two submarines were assembled: NMS Rechinul and NMS Marsuinul, although there were plans to build more battleships. The Danube monitors were modernized between 1937 and 1943 in Galați.

A year and a half after the signing of the Paris Peace Treaty in 1947, the government in Bucharest decided to re-establish some armament and ammunition factories, despite protests from the leadership of the United States of America and the government of Great Britain. Following the Moscow meeting in January 1951, the communist government in Bucharest decided to purchase some machine tools and installations in order to augment the defense industry. Thus, in the early 1960s, Romania manufactured TTC pistols, SKS carbines, PPSH-41 submachine guns, AG-2 anti-tank grenade launchers, LPO-50 flamethrowers, ZU-2 14.5 mm heavy anti-aircraft machine guns, UMIV-1 mine detectors, P.R. 60 pontoon bridges, 1952 and 1958 model gas masks, as well as various other equipment and ammunition. Despite the support provided by the USSR, the Romanian arms industry encountered serious difficulties in assimilating some electronic and electrotechnical elements. In 1965, only 27% of the army's equipment was manufactured in the country, the rest of the equipment being imported from other countries (mainly the USSR).

Following the invasion of Czechoslovakia, the process of augmenting the Romanian defense industry was accelerated, with numerous equipment being assimilated into production, either in-house or under license. Most of the land equipment was designed at Institute 111 (Armament, Ammunition and Optical Equipment Research and Design Institute), while aerospace products were developed at Institute 222.

The production of light weapons was assigned to the Mechanical Plants in Cugir, Sadu and Mija (Carpați and TTC pistols, PM md. 63/65 submachine guns, PA md. 86 automatic rifle, PM md. 64 submachine gun, model 1966 machine gun, PSL semi-automatic rifle with scope, AG-7 and AG-9 anti-tank grenade launchers). The Mârșă Automecanica Enterprise and the "23 August" Plants in Bucharest manufactured tanks and tank turrets (TR-580 and TR-800). The "Electromagnetica" enterprise was in charge of

making the Ciclop type sighting systems for Romanian tanks, and the IOR was in charge of the army's optical equipment. At Crângul lui Bot was located the Enterprise for the Production and Repair of Missile Technology (CA-95 self-propelled anti-aircraft complex, Maliutka anti-tank missiles, PRN-80 unguided reactive projectiles, A-90 and A-91 air-to-air missiles, A-921 air-to-ground missiles). The Moreni Automecanica Plant and the repair bases in Bucov, Mizil, Ribăr and Târgoviște were responsible for the production and repair of TAB-71, TAB-77 and TABC-79 armored personnel carriers, TAR-76 and TMA-83 artillery tractors, as well as ABI armored personnel carriers. Reșița manufactured 100 mm Model 1975/77 anti-tank guns, 152 mm Model 1981 howitzers, 130 mm Model 1982 guns, 152 mm Model 1985 howitzer guns and 76 mm Model 1982 mountain guns. IAR Brașov manufactured light helicopters IAR-316 and medium helicopters IAR-330, and the "Turbomecanica" enterprise manufactured aircraft and helicopter engines. The Craiova and Bacău aircraft factories manufactured the IAR-93 and IAR-99 aircraft. The BM-21 rocket launchers were also manufactured under license in Bacău. The "Steagul Roșu" factory in Brașov manufactured military trucks and parts for armored vehicles. ARO Câmpulung-Muscel manufactured off-road vehicles for the army, and the Army Arsenal in Sibiu and the Mechanical Enterprise in Bacău provided special vehicles. The Model 1977, 1982 and 1988 grenade launchers were manufactured in Brașov. The Mizil Mechanical Plant manufactured under license the MLI-84 infantry fighting vehicles and the Model 1989 self-propelled howitzers of 122 mm caliber. The MLVM mountain hunter fighting vehicles were manufactured at UTB.

Since the industry in question was not able to meet export demands, the communists began, in 1983, the construction of three new mechanical factories in Filiași, Băbeni and Drăgășani, factories that began production immediately after the completion of construction, starting in 1985.

In 1989, Romania was the eighth country in the world to export weapons.

In July 2016, a large-scale investigation by a team of investigative journalists revealed that Eastern European countries, with the help of Western European countries, had approved the discreet sale of over a billion euros worth of weapons over the past four years to Middle Eastern states that were then known to be delivering them to Syria⁴.

The Romanian arms industry is currently in the process of development, with research and innovation as its main objectives. The defense budget is 2.5% of GDP and could increase in the coming years. The

⁴ Marin Viorica, „Țări est-europene, inclusiv România, au vândut arme către state cunoscute că le livrează apoi în Siria”, available at https://adevarul.ro/stiri-externe/in-lume/tari-est-europene-inclusiv-romania-au-vandut-1725460.html#google_vignette, accessed on 05.02.2025.

defense industry development strategy was published on August 9, 2024 and is to be adopted by the Government and approved by the Supreme Defense Council.



BIBLIOGRAPHY

- BALOTESCU N., *Istoria aviației române*, Științifică și Enciclopedică Publishing House, Bucharest, 1984;
- CRISTEA R., „Tunurile Romarm trag în bugetul de stat”, *România Liberă*, 5.12.2011;
- DUMITRU D., TOADER I., „Research and innovation for the weapons industry”, *Annals Series on Military Sciences*, vol. 16, 2024, issue 3, Academy of Romanian Scientists Publishing House, Bucharest;
- MARIN V., „Țări est-europene, inclusiv România, au vândut arme către state cunoscute că le livrează apoi în Siria”, available at https://adevarul.ro/stiri-externe/in-lume/tari-est-europene-inclusiv-romania-au-vandut-1725460.html#google_vignette;
- NESTORESCU V., *File din trecutul artileriei române moderne*, Militară Publishing House, Bucharest, 1972.
- SCAFEȘ C., *Armata română 1941-1945*, R.A.I Publishing House, 1996;
- Istoria artileriei române*. Militară Publishing House, Bucharest, 1977.

