

Original article

Evaluation of the correctness of the German military intelligence's findings concerning armament and equipment of the Polish Army in 1939 Part I. Land forces

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INFORMATIONS

Article history:

Submitted: 10 May 2018

Accepted: 05 December 2019

Published: 15 June 2020

ABSTRACT

The presented publication is one of several that the author wrote on to the presentation of the knowledge of German military intelligence about the Polish Army in 1939. These publications also attempted to assess the correctness of the findings of the afore-mentioned intelligence. The article is based on archival materials of the 12th Foreign Armies East Intelligence Section of the General Staff of the High Command of the Land Forces of 1939, which developed synthetic elaborations for the top military commanders of the German army, based on the analysis and collective materials from the individual Abwehstelle. For years, the documents analysed were secret and delivered exclusively to the top commanders of the German army and Hitler's Chancellery. At present, they are entirely non-confidential and available to researchers at the Bundesarchiv-Militaerarchiv in Freiburg. Copies of parts of these documents, in the form of microfilms, can be found, among others, in the Archive of New Files in Warsaw. Due to the considerable volume of the publication, it has been divided into two parts. The presented article constitutes the first part and is devoted to the knowledge of the German military intelligence on the armament and equipment of land forces. The article presents not only the knowledge of the German military intelligence, but also basic analyses concerning the evaluation of the correctness of its findings. The analyses carried out and the generalised records presented in the article show that the German military intelligence did not make gross errors in the presented assessments concerning the armament and equipment of infantry and cavalry. That is, the most important and numerous components of the Polish Army (WP). However, many mistakes were made in the presentation of the armament of the artillery, assuming, among other things, the presence of cannons from the Polish-Soviet war of 1920 in the equipment, which the WP did no longer have in 1939. Perhaps in 1939 the Abwehr, having no current data, used data from earlier years, from the first half of the 1930s, when the WP still had cannons in its equipment. Models of the heaviest artillery weapons were also unknown. On the other hand, the Polish armoured weapons were worked out very well. The article constitutes yet another contribution to the work of learning about the so-far unexplored recesses of our recent history.

KEYWORDS

Abwehr, German military intelligence, reconnaissance of the Polish Army, 1939, Polish Army armaments



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Introduction

The presented paper is one of several papers devoted to the presentation of the state of knowledge of the German military intelligence about the Polish Army in 1939 that have already been published in the past years¹. All of them constitute elements of a collective study prepared for publication, entitled *Wojsko Polskie w ocenach niemieckiego wywiadu*

¹ See: A. Nogaj. *Wojsko Polskie w ocenie wywiadu niemieckiego w lecie 1939 r.* In: *Polska myśl wojskowa na przestrzeni dziejów. IX Ogólnopolskie Forum Historyków Wojskowości*. Olsztyn: Wydawnictwo Littera; 2007, p. 281-93; The same: *Wojsko Polskie w dokumentach niemieckiego wywiadu wojskowego w 1939 r. Omówienie źródeł z 1939 r.* Przegląd Historyczno-Wojskowy. 2008;3(223):77-98; *Obraz mobilizacji alarmowej Wojska Polskiego w ocenach niemieckiego wywiadu wojskowego w 1939 roku.* In: Peptoński A, Szymonowicz A (eds.). *Bezpieczeństwo wewnętrzne drugiej Rzeczypospolitej*. Wrocław: Wyższa Szkoła Oficerska Wojsk Lądowych im. generała T. Kościuszki; 2010, p. 130-61; *Ocena poprawności rozpoznania przez organa niemieckiego wywiadu wojskowego organizacji władz wojskowych w Polsce w 1939 r.* In: Cwiąg H, Cutter Z (eds.). *Polska wobec zagrożenia ze strony Trzeciej Rzeszy*. Częstochowa: Wydawnictwo im. Stanisława Podobińskiego Akademii im. Jana Długosza; 2012, p. 205-24; *Próba oceny wyników niemieckiego wywiadu wojskowego w rozpracowaniu organizacji i składu Wojska Polskiego na stopie pokojowej w 1939 roku.* In: Kołakowski P, Peptoński A (eds.). *Za kulisami wywiadu i dyplomacji. Polski wywiad wojskowy 1918-1945. Materiały*. Kraków: Wydawnictwo Avalon; 2014, p. 298-328; *Sukcesy i klęski kontrwywiadu II Rzeczypospolitej na kierunku zachodnim w świetle dokumentów niemieckiego wywiadu wojskowego z rozpracowania Polski, opublikowanych w 1939 r.* In: Nawrocki Z (ed.). *Kontrwywiad II RP (1914) 1918-1945 (1948)*. Vol. 2. Warszawa, Emów: Agencja Bezpieczeństwa Wewnętrznego. Centralny Ośrodek Szkolenia; 2014, p. 290-359; *Ocena skuteczności ochrony kontrwywiadowczej planów mobilizacyjnych i operacyjnych Wojska Polskiego przed penetracją niemieckiego wywiadu wojskowego w 1939 r.* In: Nawrocki Z (ed.). *Kontrwywiad II RP (1914) 1918-1945 (1948)*. Vol. 3. Warszawa, Emów: Agencja Bezpieczeństwa Wewnętrznego. Centralny Ośrodek Szkolenia im. gen. dyw. Stefana Roweckiego "Grota" 2015, p. 57-129; *Wiedza niemieckiego wywiadu wojskowego o szkoleniu, wyszkoleniu oraz morale Wojska Polskiego w z 1939 r.* In: Dubicki T (ed.). *Wywiad i kontrwywiad wojskowy II RP. Z działalności Oddziału II SG WP*. Vol. 7. Łomianki: Wydawnictwo LTW; 2016, p. 247-71; *Wojsko Polskie na stopie "W" w ocenach niemieckiego wywiadu wojskowego w przededniu wybuchu wojny.* In: Majzner R (ed.). *Wrzesień 1939 r. Z perspektywy służb specjalnych II Rzeczypospolitej*. Radomsko: Wydawnictwo "Taurus"; 2017, p. 149-80; *Sukcesy i klęski kontrwywiadu II Rzeczypospolitej na kierunku zachodnim w świetle dokumentów niemieckiego wywiadu wojskowego z rozpracowania Polski, opublikowanych w 1939 r.* In: Nawrocki Z (ed.). *Sekretna wojna. Z dziejów kontrwywiadu II RP*. Poznań: Zysk i S-ka Wydawnictwo; 2015, p. 421-506. Moreover, several publications are included in editorial works: *Ocena skuteczności ochrony kontrwywiadowczej planów mobilizacyjnych i operacyjnych Wojska Polskiego przed penetracją niemieckiego wywiadu wojskowego w 1939 r.* In: This is a reproduction of an article published by the Central Training Centre of Gen. Stefan Rowecki "Grot". It will be published in vol. 3 of a book series *Sekretna wojna 2018*, in Zysk i S-ka Wydawnictwo; *Próba oceny skuteczności ochrony konspiracyjnych struktur Polskiego Państwa Podziemnego przed penetracją niemieckiego aparatu bezpieczeństwa i wywiadu w świetle dokumentu Oddziału Wywiadowczego "Armie Obce Wschód" Sztabu Generalnego Naczelnego Dowództwa Wojsk Lądowych z 1 lipca 1944 r.* Article under development at Zysk i S-ka Wydawnictwo; *Dyslokacja Wojska Polskiego na stopie pokojowej w 1939 r. w świetle ustaleń niemieckiego wywiadu wojskowego z wiosny 1939 r. Studia nad wywiadem i kontrwywiadem Polski w XX wieku.* Article planned for publication in volume 4, under the editorship of Wojciech Skóra and Paweł Skubisz, Szczecin; 2016, p. 377-467. The next article is also interesting, although it concerns the period of occupation. *Próba oceny skuteczności ochrony konspiracyjnych struktur Polskiego Państwa Podziemnego przed penetracją niemieckiego aparatu bezpieczeństwa i wywiadu w świetle dokumentu Oddziału Wywiadowczego "Armie Obce Wschód" Sztabu Generalnego Naczelnego Dowództwa Wojsk Lądowych z 1 lipca 1944 r.* In: Przyborowska A (ed.). *Kontrwywiad II RP (1914) 1918-1945 (1948)*. Vol. 4. Warszawa, Emów: Agencja Bezpieczeństwa Wewnętrznego. Centralny Ośrodek Szkolenia im. gen. dyw. Stefana Roweckiego "Grota"; 2017, p. 133-92. In 2017, at one of the conferences, the author also gave a speech on the economy of the Second Polish Republic as assessed by German economic intelligence in 1939. An edited and comprehensive article is in the printing house.

wojskowego w 1939 roku. The presented publication, concerning the assessment of the correctness of the findings on the armaments and equipment of the Polish Army by the German military intelligence in 1939 is, therefore, yet another and most likely not the last one devoted to this subject. Due to the volume of the material presented, it was divided into two parts.

The first one presents the basic analyses concerning the correctness of the findings of German military intelligence with regard to the armament and equipment of the land forces; i.e. armament in infantry and cavalry regiments and divisions, and in artillery and armoured warfare units and sub-units. In the second part of the study, the degree of correctness of the German military intelligence's findings on the Polish aviation and fleet is presented in general terms. Issues related to the findings on radio communication equipment, means of transport and logistics of the WP were also mentioned.

In the publication, materials of the 12th Foreign Armies East Intelligence Section of the General Staff of the High Command of the Land Forces. This division was separated from the 3rd Foreign Armies Intelligence Section of the OKH in November 1938. It existed for a short time, only until October 1939, when Fremde Heere Ost: FHO – “Foreign Armies East” Intelligence Section was established in the General Staff of the High Command of the Land Forces². At the same time, Fremde Heere West: FHW – “Foreign Armies West” Intelligence Section was also established, which was subordinate to Oberkommando der Wehrmacht; OKW. These sections, together with military attachés independent of these sections, were subordinated to OQu IV; Oberquartiermeister IV, i.e. the Assistant Chief of General Staff of the High Command of the Land Forces for Intelligence. Since January 1941, this function has been performed by Gen. Kurt Oskar von Tippelskirch, author of several post-war historical publications, including the History of World War II. Moreover, an institution popularly known as the Abwehr was located in the OKW. The Luftwaffe and Kriegsmarine also had their own intelligence structures, and other Third Reich institutions housed advanced radio and telephone intelligence structures [See: 1; 2, p. 177-243]. In the 12th “Foreign Armies East” Intelligence Section of the General Staff of the OKH, there was a Division V, which dealt with the collection and analysis of information from various sources, including from the most important source of information, the Abwehr facilities; these were detailed, individual information about the Polish Army, on the basis of which collective thematic records were elaborated there [3]. The information presented in the publication on the German military intelligence, concerning the armament and equipment of the Polish Army, comes from this very division. In 1939, the Division prepared several dozen thematic records devoted to Poland. Only a few of them were used in the presented publication [See: 4]. The knowledge on the actual state of armament and equipment of the Polish Army was obtained from Polish scientific studies devoted to the Polish Army in 1939, including memoirs of the Chief of General Staff Gen. Waław Stachiewicz, studies by Czesław Grzelak and Henryk Stańczyk, the latest study by Lech Wyszczelski, Eugeniusz Kozłowski et al [5-8].

² In 2015, a translation of a work by Dr. Magnus Pahl. Fremde Heere Ost. *Wywiad wojskowy Hitlera*. Oświęcim 2015, was published. However, this certainly interesting work has many weaknesses, which can be seen already in its subtitle. The military intelligence of the Third Reich was completely different!



Fig. 1. Uniforms, armament and equipment of a soldier of the Polish Army in 1939. The presented uniform model was introduced in 1936
Source: [9, p. 8].

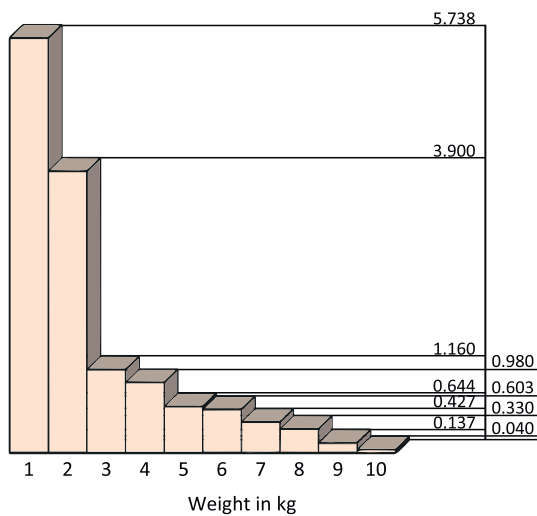
1. Armament of infantry regiments

German military intelligence knew the armaments of the infantry and cavalry of the Polish Army. In accordance with the facts, it was assumed that the basic weapons in infantry companies are Polish Mauser wz. 25 rifles. There are also German wz. 98 rifles, both 7.9 mm calibre. A magazine with 20 rounds. Weight 9 kg. It was observed that the company mortar squad was equipped with the Polish mortar wz. 36, calibre 46 mm, weight 8 kg. Missile weight 769 g, range 100-800 meters [6, p. 85; 11, p. 5]. It should also be noted that the life of an infantry soldier was not easy. In the summer, the total weight of the armament, uniform, kitbag and haversack amounted to 29.5 kg. In the winter, the weight increased slightly due to the need to wear a winter coat and it amounted to 31.8 kg [9, p. 11]. With such a load, the soldiers made long marches both during training and during the war. Every day they walked approximately 30 and sometimes even more kilometres.

It was assumed that the MMG company included in the infantry regiment consists of 3 MMG platoons and a mortar platoon. Its armament is a Polish wz. 29 rifle (corresponding to wz. 25), Polish MMG wz. 30, calibre 7.9 mm, belt with 330 rounds, Stokes mortar wz. 31, calibre 81 mm, weight 60 kg, range of the light shells 3,000 meters, heavy shells 1,200 meters. This shell had a delayed ignition detonator. It could pierce field bunkers. It was mentioned that, in some places, the "Maxim" machine guns wz. 08 and German MG wz. 08 can still be found. The reg-

iment artillery platoon was equipped with 75 mm field guns, converted from Russian ones. Range 7 km. The regiment armoured company knew about the Bofors armoured Gun, calibre 37 mm. Range up to 1,000 meters. The bullet went through armour with a thickness of up to 30 mm from a distance of 400 metres [11, p. 5-6]. Our cavalry brigades were equipped with the same types and models of weapons [11, p. 7-8].

If we look at the findings of authors of the newest monograph on the Polish Army of 1939, it turns out that these findings were correct. The main weapon of the infantry was a Mosin Mauser wz. 98/25 rifle, of which the Polish Army had approx. 1.2 million in 1939. There were also Mauser wz. 88, 98, and 29 rifles, of which the Polish Army had 771 thousand [6, p. 85]. The actual data correspond almost entirely to the findings of the German military intelligence. The number of mortars (grenade launchers) 46 mm, MMGs and 81 mm mortars held by infantry was also determined correctly [6, p. 85]. German officers were not mistaken



No.	Specification	Quantity
1	Ammunition box with zinc can	1
2	Kbk. wz. 29 rifle	1
3	Can with mask and absorber	1
4	Helmet	1
5	Defensive grenade	1
6	Bayonet with a sheath wz. 28 and a frog	1
7	Triple cartridge pouch	2
8	Offensive grenade	1
9	Cartridge holder with five bullets	1
10	Kbk. rifle protector	1

Fig. 2. Field armament of a Polish Army infantry soldier from the early 1930s
Source: [10, p. 5].

when they wrote that 75 mm cannons, very old, as from the turn of the century, were held by infantry regiments. As gen. Stachiewicz writes: “We had quite a lot 75 mm wz. 97 French cannons, enough to equip the artillery of all infantry divisions with two 9 divisions, 12 cannons per each, and to create a certain number of attached divisions” [5, p. 232]. In total, the Polish Army was equipped with 44 batteries with 75 mm cannons³. However, they were not

³ I see a very significant discrepancy in the Polish scientific literature regarding the equipment of Polish Army units with 75 mm field guns. According to Gen. Stachiewicz, we had a total of approximately a thousand of them (30 infantry divisions, 24 guns each, plus attached divisions). Meanwhile, the authors of *Zarys dziejów*

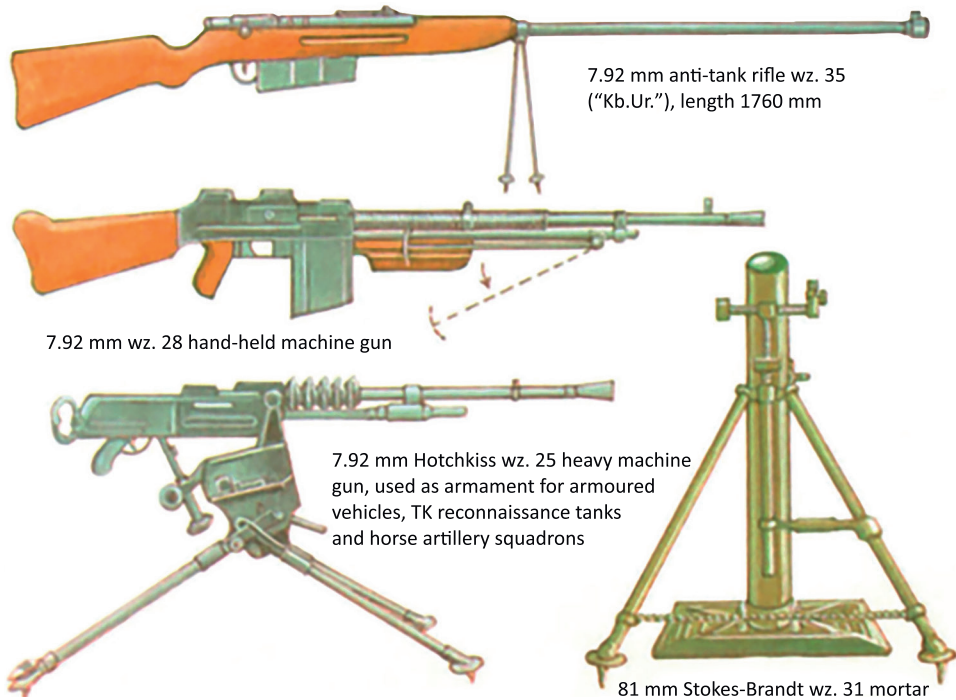


Fig. 3. Squad armament of infantry subdivisions

Source: [13, p. 429].

Russian, but French⁴. This cannon was made famous by Cichociemny Stanisław Jankowski, pseud. "Agaton", in a cabaret description of armament of both Polish and French artillery from 1939-1940 [13, p. 31-82]. Moreover, the German military intelligence perfectly defined that the basic anti-tank weapon was the famous 37 mm gun, produced in the Central

wojskowości polskiej determined that in August 1939, the Polish Army was equipped with a total of 156 pieces of 75 mm anti-aircraft guns. They do not mention the 75 mm field guns, of which, according to Gen. Stachiewicz, there were supposed to be a lot. In another section of this study, it is written that in light artillery divisions there were two 75 mm gun battalions per each; in some divisions, there was only one gun battalion per each. Horse artillery divisions of the cavalry brigades were also equipped with these guns. This is a clear inconsistency both inside the study and in relation to the recollections of Gen. Stachiewicz. It is a manifest error, probably resulting from the omission of the entry in the Table concerning this type of guns. See: W. Stachiewicz. *Wierności dochować żołnierskiej. Przygotowania wojenne w Polsce 1935-1939 oraz kampania 1939 w relacjach szefa Sztabu Głównego i szefa Sztabu Naczelnego Wodza*. Warszawa: "Rytm"; 1998, p. 227-34 and: M. Ciepłewicz [et al.]. *Zarys dziejów wojskowości polskiej w latach 1864-1939*, Warszawa: Wydawnictwo Ministerstwa Obrony Narodowej; 1990, p. 661-74. Exactly the same erroneous data, based on this study, were reported by Czesław Grzelak and Henryk Stańczyk in their very good study. See: C. Grzelak, H. Stańczyk. *Kampania polska 1939 roku. Początek II wojny światowej*. Warszawa: "Rytm"; 2005, p. 85-6.

⁴ It is worth noting that in 2012, an interesting, enriched with numerous and colourful iconographic material, not very extensive book by P.M. Rozdżestwoński. *Piechota Wojska Polskiego 1939*, was published. (P.M. Rozdżestwoński. *Piechota 1939. Organizacja i uzbrojenie pułków piechoty*. Warszawa: Wydawnictwo ZP, 2012). The author did not make use of the findings contained therein, noting that the book was more journalistic than scientific in its meaning.

Industrial Region under Bofors licence. In 1939 the Polish Army was equipped with 1,200 such cannons [6, p. 85].

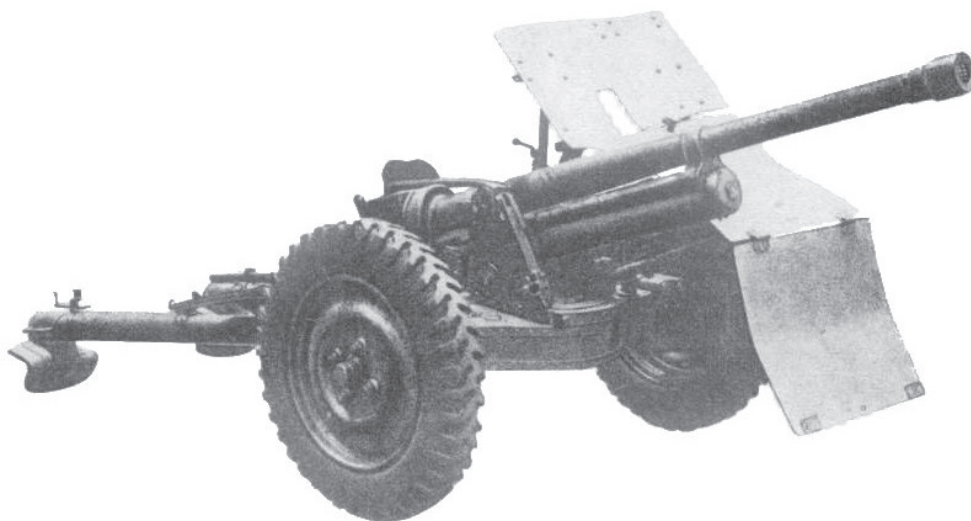


Fig. 4. 37 mm anti-tank gun, manufactured under Bofors licence
Source: [14].

“Bofors 37 mm L/45/M – Swedish anti-tank gun from the interwar period. The manufacturer of the gun was Bofors. Manufactured in Poland under licence. In 1936, it was accepted as armament of the Polish Army as “37 mm wz. 36” gun. At that time the gun was classified as a weapon of infantry (cavalry), not artillery. Anti-tank platoons and companies were organic units of infantry regiments (independent battalions), and the two formed anti-tank troops were units of infantry and cavalry. The staff of the Military Transit Warehouse at Westerplatte was equipped with two such guns. (...) The experience of the fights in 1939 showed that this gun was a very effective weapon. The small size enabled quick and easy hiding of the cannon, and the firepower was sufficient to destroy all types of tanks used in the invasion of Poland. This gun could go through a 40 mm thick armour from a distance of 100 m. However, during the September Campaign, most German tanks had much thinner armour (Panzer I, Panzer II, Panzer III with a thickness of 15 mm, and the heaviest of them, Panzer IV, had a side armour of 30 mm in 1939). Due to its low weight, the gun was incredibly mobile, especially when cavalry troops, which could move the gun in almost any area, were equipped with it. Thanks to these advantages, this weapon enjoyed a good reputation among Polish soldiers. The year 1939 was one of the last years in which this gun was of great combat value. Subsequent models of tanks were getting bigger, better and better armoured, and the time of small-bore anti-tank guns came to an end” [14].

German military intelligence clearly overlooked a very important component of infantry armament, namely anti-tank rifles with which all infantry companies were equipped.

In the opinion of Mr. Michał Mackiewicz: “The inspiration for this design were high-speed bullets – lighter shells, but flying at a higher speed, had higher stopping power than heavier (of a larger calibre) but slower shells. In addition, it was stated that such ammunition is also



Fig. 5. 37 mm anti-tank guns on fire tests

Source: From the collection of the Museum of the Polish Army, made available by Mr Andrzej Cichal.



Fig. 6. Anti-tank rifle wz. 35 calibre 7.92 mm

Source: From the collection of Mr Michał Mackiewicz, curator of the Museum of the Polish Army.

effective against armour. Experiences of German engineer Hermann Gerlich proved that a simple 6.5 mm calibre bullet with a lead core, at a speed of up to 1400 m/s, could, when hitting a 12 mm board, easily blow a hole with a diameter of approx. 15 mm in it, while an anti-tank missile launched from a “regular” Mauser (initial speed of 900 m/s) caused only a 2 mm hollow. The bullet did not go through the armour, but upon punching out a cork in it, it sublimated, that is transferred from a solid to liquid state (the lead simply evaporated); the punched out cork “assumed” the role of the bullet. This phenomenon is called the “Gerlich effect”. Based on this, at the end of the 1920s, works commenced in Poland which ultimately led to the creation of special ammunition (developed in the Ammunition Factory in Pionki and ammunition plant in Skarżysko) and weapons designed by inż. Józef Maroszek, graduate of the Faculty of Mechanical Engineering at the Warsaw University of Technology. The 7.92×107 mm DS cartridge (lead bullet in a steel shell) in combination with a 1200 mm rifle barrel provided the cartridge with a muzzle velocity of approx. 1270 m/s. At a distance of 300 m, the bullet blew a 20 mm hole in a 15 mm thick armouring. Serial production began at the turn of 1936 and 1937 in the Warsaw Rifle Factory, in a secret unit which was given the code name “Ur” (the name was supposed to suggest that a separate workshop is producing

weapons for export to Uruguay). The concealment of the project resulted from the fear that potential enemies, having discovered the advantages of the new weapon, would strengthen the armour of their tanks. The weapon designed by inż. Maroszek was distinguished by its simplicity of construction and relatively small weight. The wz. 35 anti-tank rifle was a repeating weapon, equipped with a bolt-action. It was supplied from a replaceable box magazine with a capacity of 4 cartridges. The rifle was equipped with a muzzle brake that absorbs 65% of the energy of the recoil and bipods. The weight of the weapon with a full magazine was over 9 kg. By the outbreak of the war, approx. 3,500 wz. 35 rifles were produced. Contrary to common stereotypes, this weapon was widely used in September 1939 (one rifle per platoon), proving to be an extremely effective tool in combating German armoured weapons, the majority of which were weakly armoured light tanks⁵.

The qualities of this rifle were described similarly by the Chief of GenerStaff of the Polish Army, Gen. Waław Stachiewicz: "Apart from 37 mm guns, we had anti-tank rifles as armoured weapons. The equipment was designed and manufactured exclusively in Poland. The same calibre as the usual rifles (7.9 mm), very simple and easy to use, it had the ability to penetrate homogeneous armour plates from the distance of 100 m:

- at 90 degrees – 33 mm thick plates,
- at 60 degrees – 25 mm thick plates.

During the war it proved very effective against reconnaissance tanks, armoured vehicles and even light tanks. The value of this weapon was highly appreciated not only in the September Campaign, but also later, during the search for suitable anti-tank weapons by the French and English armies. The Germans used these weapons immediately after the occupation of the country. The model of this rifle was adopted by KSUS in 1937, the production was started quickly, so by the outbreak of the war the army received 3,600 rifles and approx. 1,500,000 pieces of ammunition. Based on the KSUS decision, the equipment was secret; it was packed in sealed boxes and deposited in the mobilization warehouses of individual units. Its technical and tactical use was very simple and did not require any special training. At the beginning of July 1939, an order was issued to carry out shootings in all units of sharpshooters. In the second half of August, the general opening of boxes and distribution of equipment to sub-units were ordered" [5, p. 230-1]. It should be added that this solely Polish invention, unknown in other armies, was copied during the war by Germans, Russians and our allies, and it became extremely popular during the war and after it, under the name of an armour-piercing rifle. At present, 12.7 mm choice long-range rifles, which can wreak havoc over a distance of 2 km, and some even up to 4 km, have a similar design.

German military intelligence very carefully worked out the armament of the Polish infantry. Except for the lack of any knowledge about the above-mentioned anti-tank rifle, it did not make any other serious mistakes. It seems that it did a great job on working out the basic weapons of the infantry. It should be added that the above-mentioned weapon models were also included in the equipment of our cavalry brigades [See: 12, p. 85].

⁵ Note sent by Mr. Michał Mackiewicz, curator of the Museum of the Polish Army; also: H. Smaczny. *Księga kawalerii polskiej 1914-1947. Rodowody, barwa, broń*. Warszawa: TESCO; 1989, p. 429.

2. Armament of units and sub-units of artillery

German military intelligence recognised the armament of our artillery units and sub-units at merely a sufficient level. It was reported that the artillery weapons of the Polish Army were:

- „– Canon de 65 M models 1906 , weight 400 kg, range 6000 m,
- field gun, calibre 75 mm, Schneider wz. 97/17, weight 1,160 kg, range 11,000 m,
- field gun, calibre 75 mm, Schneider wz. 02/26, weight 1,140 kg, range 10,800 m,
- field gun, calibre 75 mm, produced in Poland. No further information available,
- mountain howitzer calibre 100 mm, Skoda, wz. 16, weight 1,250 kg, range 7,700 m,
- light field howitzer calibre 100 mm, Skoda, wz. 14, weight 1,420 kg, range 8,400 m,
- light field howitzer calibre 100 mm, Skoda, wz. 14/19, weight?, range 10,000 m,
- light field howitzer calibre 100 mm, Polish production, no further details available.

Significant part of the regiments are now probably equipped only with Polish cannons. It is unknown whether mountain infantry divisions still use mountain cannons, calibre 65 mm, and mountain howitzers, calibre 100 mm” [11, p. 10]. Clearly, they were not embarrassed to admit to their lack of knowledge. An additional description mentions that: “The structure of the heaviest artillery regiment is unknown. Existing gun types; calibre 155 mm, Schneider, range 20-24 km, mortar 220 mm, Skoda, range?” [11, p. 13]. It was written that the equipment of the Polish Army Artillery includes small numbers of 280 mm mortars, 305 mm mortars,



Fig. 7. Field Howitzer wz. 1917 calibre 155 mm, which the German military intelligence knew nothing about

Source: From the collection of Mr Michał Mackiewicz, curator of the Museum of the Polish Army.

210 mm cannon, 210 mm railway gun, old cannon from the period of World War I, calibre 305 mm, old 164 mm, 176 mm, 194 mm Russian cannons [11, p. 14-5].

The information provided by Mr. Michał Mackiewicz indicates that: “the cannon was developed by the French company Schneider during World War I on the basis of a howitzer designed several years earlier for Russia (howitzer wz. 1909 calibre 152 mm). The introduction of these weapons into the army armament resulted from the need to replace the equipment used so far, which did not meet the requirements of a modern battlefield (placing too much hope in the revolutionary quick-firing gun calibre 75 mm, the French neglected the development of heavier high-trajectory artillery before the war). Canon de 155 C, mle 1917 Schneider, as it was called in the French nomenclature, turned out to be thoroughly modern and remained in the armament until World War II. The howitzer was equipped with a hydro-pneumatic recoil mechanism, an interrupted screw and a single trail carriage with a mobile armoured shield. The rate of fire was 3 shots per minute and the practical range was 8,000 m; the ammunition was grenades and shrapnel shells. It required a crew of eight people. The first several dozen wz. 1917 howitzers were sent to Poland together with the Blue Army of Gen. J. Haller; their number increased rapidly thanks to purchases. In the fall of 1920, the Polish Army had more than 200 of these guns. Howitzers were grouped in heavy artillery divisions (4 wz. 1913 guns calibre 105 mm and 8 wz. 1917 howitzers). They remained in the armament of the Polish Army until September 1939⁶.

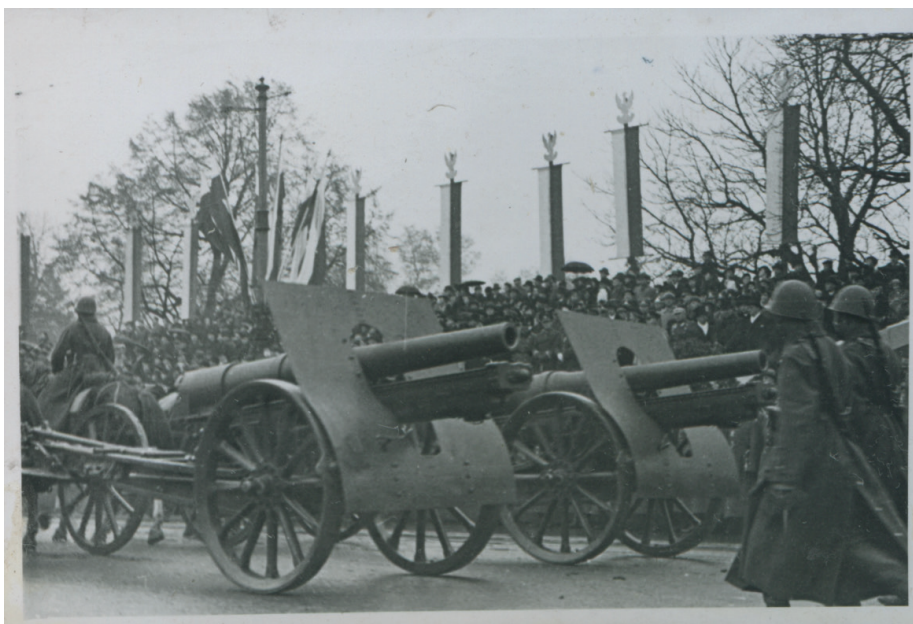


Fig. 8. Wz. 1913/29 guns, calibre 105 mm. The German military intelligence knew nothing about this gun or any other models of our artillery weapons

Source: From the collection of the Polish Army Museum. Photo provided by Mr. Michał Mackiewicz.

According to the information provided by Mr. Michał Mackiewicz: “these guns were an improved version of the earlier model 13. They were developed at the Schneider plant in France

and licensed production began in the 1930s in Starachowice, then also in Stalowa Wola (Central Industrial Region). It was a modern weapon, equipped with a hydro-pneumatic recoil mechanism and an interrupted screw. Its range reached 15,500 m and the crew consisted of 9 people. A horse-drawn carriage was used for transport. In September 1939, the "one hundred and fives" were part of the heavy artillery divisions; they were allocated to individual infantry units or grouped in heavy artillery regiments (Pol. pułk artylerii ciężkiej – pac). It is estimated that at the time of the outbreak of the war the Polish Army had 242 pieces of 105 mm guns, including 124 wz. 29 and 118 wz. 13 guns"⁷.

According to the findings of the authors of the monograph on the Polish Army 1939, as well as according to the information provided by the Chief of General Staff of the Polish Army,



Fig. 9. Basic gun of division artillery regiments. Wz. 97/17 French gun, calibre 75 mm.

Photo taken at the Artillery Cadet School in Poznań

Source: From the collection of the Polish Army Museum. Photograph made available by Mr. Andrzej Cichal.

Gen. Waław Stachiewicz, the actual armament of the artillery was different, which is presented in Table 1.

The conducted comparison shows that in the field of correct identification of the armament of the Polish Artillery, the German military intelligence made many mistakes, failing to notice the modernisation of Polish artillery, and, due to lack of knowledge, publishing information about very old models of our guns and howitzers, which were no longer in the armament in 1939.

It was correctly determined that the equipment of the Polish Army includes 75 mm field guns, with the total number of various models amounting to 1,800 pieces. Information concerning the 65 mm guns, of which there were 24, was correct. They were, in fact, very worn out already. Information concerning the 100 mm howitzers, of which there were in total 900 pieces in the Polish Army, was also correct. It was presumed that the Polish Army had heavy 220 mm mortars, which was also a correct finding. However, the German military intelligence

⁷ Ibidem.

Table 1. Evaluation of the accuracy of reconnaissance of artillery equipment used by the Polish Army in 1939

No.	Name of the artillery equipment owned by the Polish Army, according to the findings of the 12 th "Foreign Armies East" Section of the OKH in 1939	Factual situation, according to the findings of:			Evaluation of the accuracy of results of the German military intelligence
		E. Kozłowski, according to data from 15 June 1939	Zarys dziejów wojskowości polskiej. Data from August 1939	Gen. Wacław Stachewicz	
1.	Mountain gun calibre 65 mm, French, wz. 97/17	The Polish Army had 24 pieces	24 pcs.		The occurrence of this type of guns in the Polish Army was correctly recognised
2.	Field gun, calibre 75 mm, Schneider, wz. 97/17	The Polish Army had 1,374 such guns	It seems that in the study the information about this gun model is contradictory. It appears that it was forgotten to include the data about this gun in the list	Large number of 75 mm guns, wz. 97. In all divisions, two battalions each, i.e. 24 guns each	The occurrence of this type of guns in the Polish Army was correctly recognised
3.	Field gun, calibre 75, Schneider, wz. 02/26	The Polish Army had 460 such guns		Large number of old Russian guns turned into 75 mm. And used by horse artillery and infantry platoons. During the war, they were placed in defensive positions in Silesia and on the Narew River	The occurrence of this type of guns in the Polish Army was correctly recognised
4.	Field gun, calibre 75 mm, produced in Poland			Poland did not manufacture 75 mm guns	Clear error. Poland did not have its own production of this type of guns

No.	Name of the artillery equipment owned by the Polish Army, according to the findings of the 12 th "Foreign Armies East" Section of the OKH in 1939	Factual situation, according to the findings of:			Evaluation of the accuracy of results of the German military intelligence
		E. Kozłowski, according to data from 15 June 1939	Zarys dziejów wojskowości polskiej. Data from August 1939	Gen. Władaw Stachiewicz	
5.	Mountain howitzer, calibre 100 mm Skoda, wz. 16		2 pieces, no model indicated		The findings of the German military intelligence with regard to the occurrence of 100 mm howitzers in the armaments are to be considered correct
6.	Mountain howitzer, calibre 100 mm Skoda, wz. 14				
7.	Light field howitzer, calibre 100 mm Skoda, wz. 14				
8.	Light field howitzer, calibre 100 mm Skoda, wz. 14/19	The Polish Army owned 900 of these howitzers.	900		
9.	Light field howitzer, calibre 100 mm, produced in Poland				
10.	155 mm gun, Scheider				
11.	220 mm mortar, Skoda	The Polish Army was equipped with 27 such mortars		Since 1930 22 mm mortars purchased in Skoda. They were made into a heaviest artillery regiment. In 1939 there were three battalions with six mortars per each in the Polish Army	The occurrence of this type of mortars in the Polish Army was correctly recognised

No.	Name of the artillery equipment owned by the Polish Army, according to the findings of the 12 th "Foreign Armies East" Section of the OKH in 1939	Factual situation, according to the findings of:			Evaluation of the accuracy of results of the German military intelligence
		E. Kozłowski, according to data from 15 June 1939	Zarys dziejów wojskowości polskiej. Data from August 1939	Gen. Wacław Stachiewicz	
12.	305 mm mortar, in small quantities				Clear error. The Polish Army did not have such guns and mortars in its armament in 1939
13.	210 mm railway gun, in small quantities				
14.	Old gun, calibre 305 mm, in small quantities				
15.	Old 164 mm Russian guns, in small quantities				
16.	Old 176 mm Russian guns, in small quantities				
17.	Old 194 mm Russian guns, in small quantities				
18.	Not listed	There were 254 105 mm guns, wz. 13 and 19, in the Polish Army	254 pcs.	105 mm guns seized in 1920 from the Polish-Bolshevik war. The heaviest artillery divisions were equipped with these guns	
19.	Not listed	The Polish Army was equipped with 341 such howitzers	341 pcs.	155 mm French howitzers. The heaviest artillery divisions were equipped with these howitzers	

No.	Name of the artillery equipment owned by the Polish Army, according to the findings of the 12 th "Foreign Armies East" Section of the OKH in 1939	Factual situation, according to the findings of:		
		E. Kozłowski, according to data from 15 June 1939	Zarys dziejów wojskowości polskiej. Data from August 1939	Gen. Wacław Stachiewicz
20.	Not listed	The Polish Army was equipped with 43 pieces of 120 mm guns, wz. 98/31	44 pieces of 120 mm guns	Clear inadvertence of the German military intelligence
21.	Not listed		4 Bofors coastal cannons	A matter of minor importance to the land forces. The German Kriegsmarine probably had full information about these guns

Sources: [5, p. 232-4; 8, p. 143-5; 11, p. 10; 15, p. 661].

made quite a few mistakes in the determination of the artillery equipment.

The German military intelligence also knew almost nothing about 105 mm field guns, of which we had as many as 254 pieces, and 120 mm field guns, of which there were 43. The number of heaviest artillery guns was highly, highly underestimated, as only several guns in the heaviest artillery regiment were noticed. There were, indeed, quite a lot of such guns, namely 341 pieces. They also did not know anything about heavy 155 mm howitzers, of which the Polish Army had 341. The information about the occurrence of 305 mm mortars, 210 mm guns and old 305 mm and 164 mm, 176 mm and 194 mm Russian guns in the Polish Army was completely wrong. In 1939, such equipment was no longer available in the Polish Army [6, p. 85].

How to evaluate the findings of the German military intelligence with regard to the armaments of the Polish artillery? The basic types of weaponry occurring in the light artillery regiments of the Infantry Division were defined correctly. However, a huge amount of erroneous information about other models of guns and howitzers indicates that the German military intelligence had no insight into the plans of modernisation of the Polish Army implemented since 1936. Moreover, the demonstration of models of armament from World War I and the war with Bolshevik Russia, which no longer appeared in the armament of the Polish Army, indicates that the presented records constituted an information paper aimed at showing how much the OKH Intelligence Section knew about our artillery. In reality, it was clearly the other way around. Due to the very poor reconnaissance of the artillery resources of the Polish Army in relation to the actual state of affairs, it received merely a sufficient evaluation from a contemporary historian.

3. Armoured weapons

The German military intelligence knew the models and parameters of tanks and armoured vehicles owned by the Polish Army. "The main types of Polish armoured weapons are the small tanks TK 3. It is used for reconnaissance and protection tasks. It is often allotted to cavalry sub-units. Vickers Armstrong tank, which should be seen as the main carrier of armoured attack. The gradually introduced T.P.7. (Tank Polski 7) corresponds to it. The exact total number of tanks is unknown. It should be assumed that there are currently no more than 500-600 pieces and that this number is growing at a slow rate. The same applies to the number of reconnaissance tanks, of which, in theory, there are approx. 200" [16, p. 3-4].

The general description of Polish armoured weapons was complemented by photos of particular tank models, together with the description of technical parameters. In this way, the following tanks were presented: TK 3, (F or S), improved TK 3 type CardenLoyd. It was assumed that this is the most popular type of tank in Poland, corresponding roughly to TK 3. Further models are TK (tankette) Carden Loyd type, Light tank wz. 18 FT. It was noted that it occurred in a few battalions and was probably used only for manoeuvres. Renault N.O. 27. A light tank, successor to wz. 18 FT, was to be replaced by a newer Vickers Armstrongs model. The latter, Vickers Armstrongs 6 T type A tank, was manufactured in Poland, under the granted licence, with some modifications in relation to the original. Since it did not perform well, the B model with a gun turret was given precedence in production. Unlike the A model, the B model had a 47 or 37 mm gun and one 7.9 mm MG, which were coupled.

The German military intelligence reported TP 7 (Tank Polski 7) as a separate model. It was supposed to be a tank resembling Vickers Armstrongs type B, with an improved turret. The existence of the reconnaissance tank Citroen-Kegresse wz. 27 was reported. It was assumed that this model is outdated and already worn-out in the army. It was reported that the Peugeot reconnaissance tank is in use, which was outdated, but it was shown at the parade in 1937. The existence of the reconnaissance tank Ursus, wz. 29, reconnaissance tank wz. 34, probably produced in Poland, was also reported. There was a photograph of each of the listed models of tanks and tankettes, along with a specification of 15-19 detailed technical parameters [16, p. 4-6]. Some synthetic information about Polish armoured weapons was also contained in another document [11, p. 16-7].

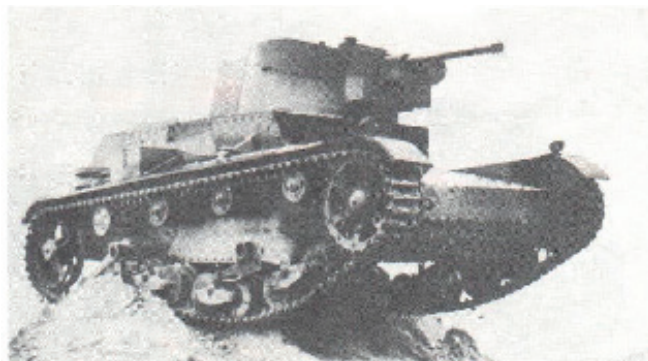


Fig. 10. TP7 tank in a polygonal environment
Source: [17, p. 55].



Fig. 11. TP7 tanks during a parade

Source: From the collection of the Polish Army Museum. Photograph made available by Mr Andrzej Cichal.

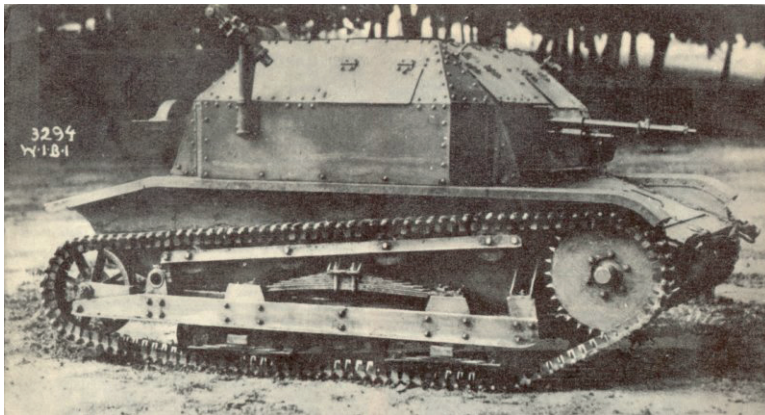


Fig. 12. The most popular in the Polish Arm was light tank TP 3

Source: [18].

„TK-3 (also TK) – a Polish tankette from the interwar period. Next to the 7TP tank, it was the basic weapon of the Polish armoured forces. Its design was based on the English Carden-Loyd tankette. The serial production of these vehicles took place in the Ursus factory in Czechowice near Warsaw. In the years 1931-1933, approx. 300 of those vehicles were manufactured. Based on the TK-3, prototype vehicles were created – a tankette with a turret (TKW) and a self-propelled gun (TKD), as well as a thoroughly modernised TKS tankette. In 1938, TK-3 tankettes were used in the occupation of Zaolzie. During the September Campaign, approx. 470 TK-3 and TKS tankettes were used mainly for reconnaissance and patrol tasks, as well as to support the attacking cavalry and infantry divisions and to protect retreating units. Until September 1939, the only user of these tankettes was the Polish Army. After the September Campaign, some of the vehicles were sent to the German and Hungarian armies” [18].

For all intents and purposes, the findings of the German military intelligence with regard to the models and parameters of Polish tanks and armoured vehicles did not differ significantly from the factual state. It was correctly determined that the most popular model of a tank in the Polish Army is TK3 and related models, of which, indeed, there were 574 in the Polish Army as of 15 July 1939. It was correctly defined that “heavy” tanks are Vickers Armstrong and gradually introduced T.P.7. (Tank Polski 7), of which there were in total 161 in the Polish Army in the summer of 1939. The 10-ton French Renault R 35 tanks, of which there were only 50, and light Renault R 17 tanks, of which there were 17, were mentioned but their role was not emphasised. The total number of tanks and combat vehicles was also miscalculated. In fact, the Polish Army owned 887 tanks of various types, i.e. almost 30% more than determined by the German military intelligence officers⁸. We did not have 200 but only 100 armoured reconnaissance vehicles [19, p. 164]. Therefore, in total, in the summer of 1939, the Polish Army was equipped with 987 tanks and armoured vehicles, while the German military intelligence estimated their total number at 700-800. Consequently, altogether, the estimation regarding the number of tanks owned by the Polish Army differed by more than 20% from the actual state. I accept that the German military intelligence did a very good job in terms of working out the Polish armoured weapons.

Acknowledgement

No acknowledgement and potential founding was reported by the author.

Conflict of interests

The author declared no conflict of interests.

Author contributions

The author contributed to the interpretation of results and writing of the paper. The author read and approved the final manuscript.

Ethical statement

The research complies with all national and international ethical requirements.

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Biographical note

Adam Nogaj – dr, historian, retired officer of the Polish Army. He completed his military service in the 9th Radio Reconnaissance Regiment (radio intelligence service) i.a. as the commander of the listening platoon in the KF band and in the 1st Assault Battalion (currently the 1st Special Commando Regiment – now called the Military Commando Unit) as the commander of the special (intelligence) radio station platoon and a youth and cultural-educational instructor. He was also a lecturer in military history, political geography and war geography at a military university. After completing his military service, he started working in IT companies. For many years he has been the owner and manager of a small software company. Author of several dozen scientific publications devoted to military reconnaissance and intelligence, special operations. He is also the author of a two-volume study, which is currently being prepared for printing, entitled *Oddział Wywiadowczy Sztabu Głównego ludowego Wojska Polskiego*

1944-1945. Currently, he is working on another work entitled: *Wojsko Polskie w ocenach niemieckiego wywiadu wojskowego w 1939 r.*

Ocena poprawności rozpracowania przez niemiecki wywiad wojskowy uzbrojenia oraz wyposażenia Wojska Polskiego w 1939 roku
Część I. Wojska lądowe

STRESZCZENIE

Prezentowana publikacja jest jedną z kilkunastu napisanych przez autora, poświęconych prezentacji stanowi wiedzy niemieckiego wywiadu wojskowego o Wojsku Polskim w 1939 r. We wspomnianych publikacjach podjęto także próby oceny poprawności ustaleń tego wywiadu. Artykuł bazuje na materiałach archiwalnych 12. Oddziału Wywiadowczego „Armie Obce Wschód” Sztabu Generalnego Naczelnego Dowództwa Wojsk Lądowych z 1939 r., który opracowywał syntetyczne opracowania dotyczące Polski dla najwyższych rangą dowódców wojskowych, w oparciu o analizy oraz materiały zbiorcze z poszczególnych Abwehrestelle. Analizowane dokumenty były przed laty dokumentami tajnymi, dostarczonymi wyłącznie do dowódców najwyższego szczebla armii niemieckiej oraz kancelarii Fuehrera. Obecnie, są one zupełnie jawne, dostępne dla badaczy w Bundesarchiv-Militaerarchiv we Freiburgu. Kopie części z tych dokumentów, w postaci mikrofilmów, znajdują się m.in. w Warszawie w Archiwum Akt Nowych. Z uwagi na znaczną objętość publikacji, została ona podzielona na dwie części. Prezentowany artykuł, to część pierwsza, poświęcona stanowi wiedzy wywiadu niemieckiego o uzbrojeniu oraz wyposażeniu wojsk lądowych. W artykule zaprezentowano nie tylko wiedzę wywiadu niemieckiego, lecz także podstawowe analizy, dotyczące oceny poprawności ustaleń tego wywiadu. Z przeprowadzonych analiz oraz zaprezentowanych w artykule uogólnionych zapisów wynika, że wywiad niemiecki nie popełnił rażących błędów w przedstawionych ocenach, dotyczących uzbrojenia i wyposażenia piechoty i kawalerii. Czyli najistotniejszych i najliczniejszych komponentów WP. Dużo błędów popełniono jednakże w prezentacji uzbrojenia artylerii, przyjmując m.in. istnienie na wyposażeniu dział z wojny polsko-bolszewickiej 1920 r., których w 1939 r. na wyposażeniu WP już nie było. Być może, że Abwehra, nie mając aktualnych danych w 1939 r. posłużyła się danymi z wcześniejszych lat, z pierwszej połowy lat 30., kiedy to działa występowały jeszcze na wyposażeniu WP. Nie znano także modeli najcięższego uzbrojenia artylerii. Rozpracowano natomiast na bardzo dobrym poziomie polską broń pancerną. Artykuł, jest kolejną „cegiełką” wnoszoną w dzieło poznania dotychczas niezbadanych zakamarów naszej najnowszej historii.

SŁOWA KLUCZOWE Abwehra, wywiad niemiecki, rozpoznanie Wojska Polskiego, 1939 r., uzbrojenie Wojska Polskiego

How to cite this paper

Nogaj A. *Evaluation of the correctness of the German military intelligence's findings concerning armament and equipment of the Polish Army in 1939. Part I. Land forces.* Scientific Journal of the Military University of Land Forces. 2020;52;2(196):366-86.

DOI: <http://dx.doi.org/10.5604/01.3001.0014.2540>



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