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History of the Development of Artillery Intelligence

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Annotation: Tasks such as locating artillery casualties, determining character, and correcting firing are one of the main tasks of artillery intelligence. This article describes in detail the emergence and development of artillery intelligence as a type of intelligence, and provides clear facts on the timing of the emergence of artillery intelligence types.

Keywords: artillery intelligence, sound intelligence, optical intelligence, radar intelligence, observation point, closed fire position.

History has shown that victory in battles was dominated by the enemy's composition, position, weapons, combat ideology, as well as those who knew the area well enough. Intelligence plays an important role in achieving the above information.

Even in the state administration of our ancestor Sahibkiran Amir Temur, the sultan of the seven climates, intelligence played an important role. Makes decisions and acts on the basis of intelligence in diplomatic relations, military campaigns and domestic and foreign policy of the state [1].

We can see that the Chinese general Sun Tzu's treatise on martial arts is based on the doctrine of "Complete knowledge is a sure victory, complete ignorance is instability, victory or defeat, ignorance is a definite defeat" [2].

Damage to the enemy in battles is carried out on the basis of information determined by intelligence forces and means. Experience of wars, hostilities and military conflicts has shown that a large part of the volume of casualties falls on artillery. Tasks such as locating artillery casualties, determining their character, and correcting artillery fire are one of the main tasks of artillery intelligence.

Artillery intelligence is an integral part of tactical intelligence. Its emergence is directly related to the ability of artillery weapons to perform firing tasks from a closed firing position. [2].

It is no exaggeration to say that the Civil War of 1861-1865 in the United States was a real test of modern artillery weapons of that time. [3]. The images of the warriors burning on the battlefield, torn to pieces, and dying in horrible guises testified to the decisive role of artillery in the battle.

Many of these losses were also observed in the personnel of the artillery batteries, as the artillery batteries of the northerners and southerners would often have to conduct a "battery duel." [4].

In those days, the only way to eliminate such losses was to select the firing positions of the batteries in places sheltered from enemy batteries. Therefore, a new term "closed firing position" has emerged. According to other sources, the Russo-Japanese War of 1904-1905 showed that the lifespan of artillery batteries in open firing positions was short, and that they would not be able to open fire on the enemy. In this battle, Russian artillerymen were the first to offer to open fire from a closed firing position, as a result of which the firing positions were sheltered from enemy ground surveillance vehicles [2].

Now there is the problem of determining the target from a closed firing position, directing the firing at the target, that is, conducting artillery reconnaissance. Research has been conducted in the

artillery units of the armies of different countries to find solutions to such problems. As a result, for the first time in military history, Teddeus Lau [6] raised the balloon to a height of 91 m (300 ft) to monitor the movements of enemy troops and its positions on the battlefield and then tied it and recalls the process: I saw a horrible situation - the cannons were lying on the ground in a state of disrepair and heavy casualties, the cannons of the cannons were torn to pieces, the shells exploded with boxes, the horses were crushed and wounded, the artillerymen crawled around with pistols in their hands to rescue the wounded for which they shot the horses that were lying on the ground."

As a result of the intrusion of notched artillery into the armament of the troops, they were able to fire long distances. As a result, artillery weapons were located 2-3 km inland from the front edge, and for the first time, artillery fire control was carried out from observation points.

In 1865, Major General V.L. Chebyshev, a Russian artillery officer, began teaching artillery officers the rules of firing from a closed firing position for the first time. The content of the Russian general's exercises included information on the location of artillery firing positions and observation posts, observation of the battlefield, identification of targets and devices for firing at them, targeting artillery cannons and cannons. [4].

Capt. A. Degtyarev, a Russian artillery officer who was directly involved in the Russo-Japanese War of 1904-1905, analyzes the results of a brief but devastating war and records his experiences of using artillery in this battle. [5].

Both sides have had great success in this battle, but a more carefully thought-out tactic will yield even more surprising results in future battles, he says in his book. In particular:

1. First firing is a big step to success, especially if the firing is done from a closed firing position.
2. If the enemy has located the battery, there is a great risk that there will be a lot of losses in the personal composition of the battery.
3. The enemy will stop firing if a clear fire is fired at the enemy's location [6].

It is not difficult to analyze whether the data cited by the author basically meant artillery intelligence. He said that in order to open fire first, it was necessary to determine its location before the enemy, otherwise the artillery intelligence would cause great losses if it was not carefully organized or the forces and means were not allocated. In order to fire accurately at the enemy, the coordinates of its location must be determined with high accuracy, of course, this task also applies directly to artillery intelligence. During the wars, as a result of the improvement of artillery weapons from year to year, the need for artillery intelligence to find the target, determine its character, serve artillery fire, in short, increased, resulting in artillery intelligence and gradually developed.

Initially, artillery reconnaissance was organized by ground and air surveillance. Later artillery sound intelligence appeared.

Regarding the artillery's defense operations at night, Degtyarev wrote: "Artillery cooperation is an important factor in night defense. The judicious use of artillery will not only be effective in terms of moral influence, but will also result in serious damage to the enemy. In doing so, it is important to monitor the enemy and correct the firing [5]. The best way is to bring the observer to the advanced line and connect it to the battery via a telephone connection. To achieve the accuracy of artillery fire, it is advisable to determine the distance and azimuths to the firing points during daylight hours.

Proper installation of the cannon, height and horizontal angle in the direction of the gun guarantees the safety of our troops [4]."

During World War I, battlefield conditions required him to create appropriate tactics. When light and small-caliber cannons did not yield the expected results in inflicting casualties on enemy fortifications, heavy and large-caliber artillery and cannons improved. As a result, the means of displaying the target have also developed.

In the early days of the war, there were two main methods of locating enemy artillery positions.

The first is through "sound" and the second through "flashing". [6]. The first method involves the use of special microphones to detect the sound waves (generation) that occur as a result of long-range artillery fire. To do this, they placed several microphones at different points and measured the intervals at which sound reached each microphone. After analyzing the data obtained, they determined where the sound came from and plotted the point where the sound came from on the work map.

The emergence and historical development of sound intelligence dates back to the years following the Russo-Japanese War. In 1909, Lieutenant Nikolai Benau of the Preobrazhensky Regiment of the Russian Army proposed a method of determining the positions of enemy batteries by firing. [5]. The emergence of sound intelligence in field artillery led to the N.A. Benaou's proposal was the foundation. In the armies of other states, voice intelligence emerged a few years later. For example, it was created in the German and French armies in 1915, in the British army in 1916, and in the American army in 1917 [5].

Hardware testing began in the 1910s and was characterized by its simplicity, ease of learning, and wide range of capabilities for use in castle battles.

In early 1914, the invention was considered ineffective, but with the onset of the war, the inventor was able to go to the battlefield and use the equipment in a real combat situation. In battle, the inventor was able to detect the enemy's unsuspecting battery for the first time. Based on the information obtained, when the area where the firing took place was captured, the location was actually determined by the firing position of the enemy artillery battery and the pits formed by the explosion of the shells. During the war, voice intelligence proved itself to be an effective tool several times. Nothing could stop the tool from working, not even night, fog and low elevation.

Over the years, sound intelligence has improved as a result of the attention paid to it. In 1921, the Moscow Artillery Sound Detachment was formed, which became the first sound reconnaissance unit of the working peasant Red Army.

In 1933, teachers of the Artillery Academy Aporin, Talanov, Brovarik, Pozoev and others developed the first manual "Sound Intelligence in Artillery." In 1938, a new manual, The Voice Intelligence Service, was developed and widely used during World War II. One of the most important data is that during the war years, 70% of the enemy's reconnaissance and detected artillery batteries accounted for sound intelligence. [5].

The method of detecting flashes formed the basis of optical intelligence. Flash detection was used until the end of World War II: several observers measured the azimuth of the flash point and then determined the flash point. Based on the data obtained, artillery batteries fired at the target.

Intelligent reconnaissance of the enemy using optical instruments from observation points is called optical intelligence. It is based on seeing the signs directly. It is the oldest of all types of artillery intelligence [4].

Initially, artillery officers visually observed the explosion of the shells, then using various optical instruments.

From 1918, when the Red Army was formed of permanent units and divisions, the organizational formation of optical intelligence began. At that time, each artillery battery had eight observers, the artillery division had six observers, and the artillery division had up to twelve observers. The field maneuver "Maneuvering War" charged the artillery intelligence with the following tasks: to identify the enemy in a timely manner, first of all to monitor artillery batteries; to determine the enemy's observation points; look for and study the targets that the artillery needs to destroy or suppress [1, 4].

Despite the fact that in the battle with the Finns in 1939-1940, the enemy carefully masked all the elements of the combat order, optical intelligence forces and means identified a large number of long-term defensive structures of the enemy.

The combat readiness of the optical intelligence units and the actual testing of the optical intelligence equipment took place during World War II.

In most operations, there are 100-130 observation points per 1 km of front in the area of breaking through the enemy's defenses. In all types of combat, regardless of the time of day, all artillery commanders conducted reconnaissance by surveillance. In the dynamics of the war, commanders began to use mobile observation posts, resulting in the notion of temporary observation posts. This was a novelty in the organization of optical intelligence [1,4].

Temporary observation points were used when it was not possible to observe the enemy from the main observation points.

During the Second World War, optical intelligence not only identified enemy fortifications and firing points on the defensive front, but all optical intelligence accounted for 25% of the total number of enemy artillery batteries detected by force and means. [1].

The advantage of optical intelligence is that it has the disadvantages of speeding up the deployment of observation points, as well as the simplicity and ease of use of surveillance tools. When conducting reconnaissance on the depth of the battlefield, the nature of the place and the level of visibility have an impact.

Optical reconnaissance, battlefield surveillance and target reconnaissance are carried out using optical and optical-electronic devices.

As a result of the development of optical intelligence, binoculars, periscope artillery compasses, artillery periscope, stereoscopic rangefinders and intelligence theodolites were created, and as optical-electronic devices, infrared binoculars, night vision devices and intelligence theodolites were created.

Based on the study, analysis and generalization of the historical basis of the emergence of artillery intelligence, the following can be **concluded**:

1. Improvements in artillery weapons and attempts to reduce casualties have led to the emergence of the notion of a closed firing position, which has led to the emergence of artillery intelligence.
2. During the wars, types of artillery intelligence (optical intelligence, air intelligence, sound intelligence and radar intelligence) emerged.
3. Artillery intelligence was formed as a type of army, and artillery intelligence units were formed in the state of artillery brigades, regiments and divisions, and guidelines regulating their activities were developed.
4. A new type of intelligence for artillery intelligence units was invented and improved.

5. The experience of the use of artillery in modern military conflicts shows the need for a new approach to the conduct of artillery intelligence and increasing the intelligence capabilities of units.

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