

NEW TRENDS IN THE USE OF DIFFERENT WEAPONS IN THE RUSSO-UKRAINIAN WAR

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In the Russian-Ukrainian war, there was a change in the weight of the use of some weapons in military actions. The very intensive use of ground artillery is observed. It is estimated that about 70% of Ukrainian military casualties are caused by Russian artillery fire, which is an extraordinary component of the armed forces. The Institute of Strategic Studies (IRUSI) in London notes the accuracy, but especially the short reaction time (up to three minutes) of this weapon.

For the Ukrainians, the JAVELIN anti-tank missile and the highly accurate HIMARS systems (error of only 10m from the target) were very effective in hitting some infrastructure elements and warehouses of ammunition and logistical materials. As a result, the Russians had to move some of their warehouses deeper.

A significant share is the drones used intensively by both sides, mainly the BAYRAKTAR (Turkish origin) by the Ukrainians and the SHAHED (Iranian origin) by the Russians.

Keywords: Russian-Ukrainian war; artillery; JAVELIN; HIMARS; drones;

INTRODUCTION

For the past year and nine months, a war has been raging with no clear end in sight. Both sides have suffered significant human and material losses, yet neither has been able to claim victory.

With great insistence, military analysts and professionals emphasise the concept of modern war, which has distinct features related to the training of fighters, systems and means used in military actions, and the application of laws and principles of armed combat.

“Modern warfare is warfare that differs significantly from previous military concepts, methods, and technology, emphasising how combatants must modernise to ensure their combat worthiness” (Enciclopedia online). There are some considerations, with which we do not fully agree, according to which “the decisive weapons systems in modern total war are: the tank, the heavy bomber and the submarine” (Social Science Open Access Repository).

APPLICATION OF THE LAWS AND PRINCIPLES OF ARMED COMBAT IN THE WAR IN UKRAINE

In analysing the conduct of wars, including the Russian-Ukrainian conflict, it is important to examine how the belligerents understood and applied the laws and principles of armed conflict.

The law is a *“philosophical category that expresses the essential, necessary, general, relatively stable, repeatable relations between the components of an object or phenomenon, between different objects or phenomena or between the successive stages of a process”* (<https://m.dex.ro/legea>). Hegel emphasised that *“Law does not lie beyond the phenomenon, but is directly presented by it; the realm of laws is the calm image of the existent or phenomenal world”* (https://www.armyacademy.ro/reviste/1_2001/g_4.html).

In war, armed combat is an essential element that is governed by objective laws that act independently of the will of men, laws with a pronounced specific character. Failure to apply these laws inevitably leads to failure and therefore to defeat.

Armed combat is the military, violent, main component of war, dominated by its laws, which express the specific relations of direct confrontation in its entirety

or its domains (strategy, operational art and tactics), as well as in the forms of military action (offensive, defence, retreat, encirclement etc.), relationships that manifest on the battlefield. The laws of armed combat express the *“essential, necessary, general, repeatable and relatively stable relations between the internal sides of the phenomenon of war, as well as between them and other areas of social life, which determine the preparation and conduct of military actions”* and are expressed through a statement or a formula, usually by a semantic or logical explanation. As social laws, the laws of armed combat belong to the category of statistical laws, being directly correlated with the statistical population existing at a given time.

The knowledge of the laws of armed combat is essential for political-military decision-makers to lead and manage the preparation and conduct of military actions.

Military theorists distinguish between two categories of laws of armed combat: general laws, which establish the dependence of military actions according and other social fields (economy, politics, science, technology, diplomacy, population, etc.) and particular laws, which relate to specific relationships of armed combat in its entirety or certain areas of it. The first category includes: the law of the dependence of armed combat on economic and social conditions; the law of the role of the masses in war. The particular laws include: the law of concordance between goals, forces and means, the law of the ratio of forces, the law of the dependence of forms and procedures of military actions on the level of development of armaments and combat techniques, the law of the unity of actions.

In many ways, the war launched by Russia in Ukraine on 24 February 2022 no longer resembles the last world conflagration 80 years ago. This conflict has turned overnight into a modern one, in which new weapons equipped with advanced technologies are used, in addition to the means considered classic.

A prime example is the extensive utilisation of UAVs (drones) by both sides. Ukraine has received the latest generation of drones from the West, which are capable of flying at an altitude of 6,000 meters, carrying up to 20 kilograms of explosives and targeting from deep within the disposition. One incident involved a drone hitting a target in Moscow, which is 500 kilometres away.

The war in Ukraine also caused a technological transformation. Both sides sought to identify a weapon innovation that would unlock the battlefield situation and give a decisive advantage. Changes were seen gradually. Drones have become one of the main weapons used in this war by both sides, and their massive introduction

to the battlefield is a first in the history of warfare. The global market for military drones is expected to grow from €13.3 billion in 2023 to €33.4 billion by 2030, according to Fortune Business Insights. Ukraine aims to spend around €1 billion to upgrade its drone fleet.

Although Kyiv refuses to officially claim responsibility for such attacks inside Russia, this course of action is seen as part of a wider offensive aimed at moving the conflict to the Kremlin's doorstep.

Experts say the way Kyiv is looking to do this is by using drones both in the air and at sea – a relatively cheap, consumable technology that has changed modern warfare in recent years, but most notably that between Russia and Ukraine.

Many military experts believe that Ukraine's use of drones could play a decisive role in tipping the balance of power in its favour, although their ability to deliver decisive strikes is less likely.

Ukraine's UJ-22 Airborne drone, which has a range of 800 kilometres, can fly at an altitude of 6,000 meters with a cruising speed of 35 km/h and can carry up to 20 kilograms of explosives, is capable of executing precise attacks, being equipped with artificial intelligence (AI) that can block enemy communications. This new way of striking the opponent by using drones is also widely used by Russian military, through drones, especially those of Iranian manufacture (SHAHED).

It can be seen on both sides that these means of attack are used to hit military objectives (command points, artillery systems, groups of forces of various kinds, armoured vehicles, battleships, warehouses of ammunition and other materials, etc.), but also civil and infrastructure objectives (ports, bridges, power plants, dams, warehouses with various means, administrative centres, towns, etc.).

*“Drones can be deployed quickly, for long periods of time, and to lethal effect at lower financial costs and risk to life for those using them, compared to piloted aircraft or ground forces projected over great distances”*¹, said Professor Stefan Wolff from the University of Birmingham.

“While drones are not as capable as fighter jets, they give war actors access to some airpower. Combined with digital technologies that enable high-definition surveillance and precision strike, drones can be quite lethal to ground forces” (Ib.), said Paul Scharre, an expert at New American Security.

¹ *“Războiul modern transformat peste noapte: Noile arme ale Ucrainei care îl pot învinge pe Putin”*, https://ziare.com/drone-ucraina/razboiul-modern-ucraina-transformat-pest-noapte-noile-drone-ale-ucrainei-il-pot-invinge-pe-putin-video-1818470?utm_source=Ziare.com&utm_medium=copy-paste, retrieved on 7 October 2023.

This reality of the battlefield also led to the need to combat drones, an operation that involves discovering them, destroying them physically, jamming their signals or redirecting them to less harmful areas. Here are some comments. Ground radar stations can help detect drones from a distance, but it is more difficult, but it becomes more challenging when they fly at low altitudes. Destroying them using anti-aircraft guns or missiles is possible, but it comes with high costs and low success rates. Also, trying to destroy them this way can reveal important information about the disposition. Jamming can prevent drones from hitting their intended targets, but it can also result in uncontrolled flight that may hit other targets. Military equipment manufacturers who claim to have 100% success rates in combating drones are unrealistic. It clearly follows that the cost of battling drones is higher for the defender. We don't always have to refer only to the costs, it's also crucial to consider the effects of un-combated drones. Ukrainian sources reported that out of the 30 drones launched by the Russian army on the first night of October, only 16 were combated. The report is inappropriate and, as a result, significant effects have been achieved.

New and interesting elements have emerged in the war between Israel and the Palestinians. We witnessed rockets and projectiles being fired by Hamas at Israel. These numbered in the thousands, according to some sources, many of which were intercepted and destroyed by the IRON DOME system. Sources also estimate that the system has an interception rate of 90-97%. For conventional weaponry, it would be relatively acceptable, but what would it be for nuclear weapon? This war is very expensive. The rockets launched by Israel, according to some sources, cost 40,000-100,000 dollars.

Another reality on the battlefield in the Russian-Ukrainian war is the extraordinary role of artillery and ground missiles which, through the effects produced, led to the so-called artillery genocide. It is estimated that 70% of the losses suffered by the Ukrainians are caused by Russian ground artillery. The Russian army uses both classic artillery pieces and rocket launchers of the "KATYUSHA" type, as well as self-propelled howitzers.

The Russian military has based its strategy and tactics particularly on land-based artillery systems (cannons, howitzers, rocket launchers, reconnaissance elements and ammunition depots). Russian artillery is intensively hitting the enemy troops directly in front of the contact line, but also in the depth of the disposition. The Ukrainians could win the duel with the Russian artillery only by so-called counter-battery fire, effectively using the self-propelled artillery received as support.

The way artillery is allocated to fighting brigades is noteworthy. Each brigade has an artillery group that consists of three battalions – two battalions of self-propelled howitzers and one battalion of "KATYUSHA" type. Each artillery battalion has 18 pieces, divided into three batteries, with six pieces each.

CONCLUSIONS

Due to the use of advanced fire means by the Ukrainians, which can strike at greater distances and with increased accuracy, the Russian ground artillery is able to complete missions in a shorter amount of time. After completing their mission, the Russian artillery leaves the firing positions or moves to a safer location within the combat disposition.

There is also an interesting reality on the battlefield. Since the two armies started the war with the same calibre artillery pieces (122mm, 152mm, and others) from the Soviet era, capturing ammunition deposits was a major advantage.

The lessons learned from the unfolding of the conflict in Ukraine regarding the place and role of artillery and land-based missiles as long-range strike vectors with decisive effects shed some light on the abolition of the Military Artillery School in Sibiu (at the same time with the Research, Development and Arms) which had an impressive didactic base, with modern specialised rooms, laboratories, simulators, fields and sports halls and other facilities that allowed the training of artillery officers at the similar level of many educational institutions abroad.

An interesting conclusion is that the armoured vehicles sent to Ukraine by Western countries have mostly failed because they were not manufactured for a conflict of such intensity. Namely, they were designed for low to medium-intensity conflicts and not for all-out war. Military experts consider that some simpler and cheaper systems would be needed for Ukraine, but in a much larger volume. From the reality of the battlefield, armoured systems are highly vulnerable to artillery and mines, which have proven to be formidable challenges. Statistics show that less than 5% of Ukrainian tanks destroyed since the start of the war were caused by Russian tanks, with the rest knocked out by mines, artillery, anti-tank missiles and drones. This shows that the relative sophistication of a tank is no longer as important as previously thought, and does not justify the huge costs of upgrading it. Ultramodernisation is desirable when there are tank-only matchups, which is unlikely. Although military strategists do not accept it, it seems that in the Russian-Ukrainian war, within certain limits, quantity is over quality.

The war in Ukraine is a huge testing ground for AI vehicles. A military expert recently demonstrated to the TheNextWeb publication the level of technology of military robots donated to Ukraine by some states. The THemIS vehicle has become a special target for the Russian military, with anyone who captures it being offered a reward of 15,000 Euros.

The war in Ukraine is not one happening between machineries. Autonomous or unmanned weapons and vehicles are noted to have no major impact. Almost all autonomous vehicles can operate without human intervention and rely on artificial intelligence, but many unmanned vehicles can be controlled from a distance by humans. Some countries want to send robots and state-of-the-art weapons to the Ukrainian government for two reasons, namely to test their technical capabilities without risking casualties in their military. Expert Alex Stronell shows that several types of autonomous robots are used in Ukraine and that Russia has the Uran-9 robot, which is the most advanced unmanned ground military vehicle in the world, according to him. It shows, however, that there is no indication that the Russians used it in Ukraine, probably also out of fear of being captured, in which case some technological secrets would be lost. Uran-9 is a tracked unmanned combat vehicle developed and produced by JSC 766 UPTK and promoted and offered by Rosoboronexport for the international market (Enciclopedia online).

It turns out that the killer robots are not as useful as believed and hoped by the designers, but also by the military. As much as the world fears the appearance of *“killer robots”* in war, the current technology is not developed enough, says the specialist consulted by TheNextWeb. Stronell predicts the military paradigm of the future as a hybrid one, as a link between artificial and human intelligence. It costs less to train a man to fight on the front than to build massive, very expensive weapons systems, according to the cited publication. The actual current military need for *“killer robots”* is not very great on the battlefield. The war of the future will not be that of robot armies.

There are many conclusions if we analyse how the laws and principles of armed combat are applied in the war in Ukraine. We shall refer especially to the laws of armed combat. We appreciate that either out of unawareness or ignorance, but especially out of exaggerated pride, the Russian army did not consider the law of concordance between goals, forces and means. The Russian political factor proposed major goals, mainly the rapid conquest of Ukraine, and the change of the political-military leadership without having the forces and means consistent with this goal. Russia has a large army with an impressive arsenal of classic weapons,

but it has not allowed itself to radically redeploy troops from various areas for the war in Ukraine, considering some possible external threats, but also some internal tensions. It was mistakenly believed that by the forces and means employed in the so-called special operation the intended purpose would be achieved in a short time.

Nor was the law of the ratio of forces taken into account. There is a unanimous view among military experts that, under normal conditions, the success of an offensive is ensured by an overall force ratio (quantitative and qualitative) of at least 3 to 1. Even if, in some directions, the Russian army had this ratio of forces, at the general level, there was no such situation and this caused failures in important directions including the one leading to the capital Kyiv. It is appreciated that the initial ratio of forces has decreased, over time, also due to the huge losses suffered by the Russian army, but also by the aid received by the Ukrainian armed forces.

And the application of the law of the unity of combat actions was not well enough considered. On both sides, the actions were not properly coordinated between the categories of the armed forces and within them between the types of arms. The land forces' actions were not optimally supported by air and naval strikes. There were situations when armoured columns failed because they were not provided with any protection by infantry or aviation so there was no overall unitary action on the battlefield.

Military commanders also suffered by not correlating the forms and procedures of military actions with the level of development of armaments and combat techniques. There were situations in which, using outdated technology, they attacked positions where there was superior technology, which also determined the failure to fulfil the proposed goals, as well as significant human and material losses. There were also actions in which state-of-the-art technology was used indiscriminately, being annihilated with classical means. It is appreciated by military specialists that the improper use of modern tanks in the front line will lead to their rapid loss.

As a result of the Russian-Ukrainian war, some major consequences resulted, among which we highlight:

- the significant increase in the defence budgets in the two belligerent states, but also in other countries;
- the development, at a high rate, of war production in Russia and Ukraine and in the states that help Kyiv, considering the significant decrease in the stocks of armaments, ammunition and other means of waging war;

- the expansion of NATO as a result of the fears of some states of not ending up in Ukraine's situation;
- increasing importance of the Black Sea area in the current geopolitical equation;
- the increasing deployment of some NATO forces and means in the member countries of Eastern Europe;
- massive losses among both armies, as well as civilians;
- the total, indiscriminate destruction of some localities, administrative, social, and educational objectives, power plants, dams, bridges, communication routes, port infrastructure and others;
- this war calls into question the validity of renouncing larger armies through the so-called demassification, but also of giving up compulsory military service;
- increasing the role of manipulating public opinion through fake news aimed at discrediting the opponent and cultivating confidence in one's forces;
- as a result of inadequate results on the battlefield, many measures were taken by the leadership of the two armed forces; it appears that US Chairman of the Joint Chiefs of Staff General Mark Milley stepped down from his position because of the failure in Ukraine, despite his previous high performance (www.defense.gov);
- the long duration of the war, with no end in sight, with both sides imposing unacceptable conditions.

In the end, we appreciate that the war between Russia and Ukraine, which was not desired by the people of either state, has led to new approaches and trends. We have only partially analysed this complex phenomenon considering its magnitude and the fact that it is still ongoing. We can only hope that the situation will not deteriorate further and that it will not have an impact on all of Europe or even human civilisation as a whole.

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