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The place and role of asymmetry in war

The paper studies the role and place of asymmetry in wars. The study's aim is to substantiate the place and role of asymmetry in wars through the establishment of cause-and-effect relationships between them. As a result of this study, it was concluded that asymmetry is essential; it plays a unique role in wars and is determined by the following triad: weaponry, military art and the armed struggle nature. Therefore, focusing on the issues of creating an asymmetric advantage is an essential basis for choosing ways to prepare any state for military operations and successfully conduct ones.

Keywords: war, asymmetry, armed struggle, weaponry, military art.

Wars accompany humanity throughout its life path on our planet. At the same time, war is an extreme form of solving armed violence political, socio-economic, ideological, national, religious, territorial, and other contradictions between states, nations, classes and social groups. Thus, the specific content of war is armed struggle. Therefore, the «asymmetric war», «hybrid war», «information war», «economic war», «food war», and similar terms should be considered as derivatives of the «war» term.

During the war, each of the belligerents carries out their actions, using, among other things, the asymmetry principle. Asymmetry in a general form is determined in a well-known mathematical interpretation – as the distortion or absence of symmetry. Concerning that, the asymmetry in wars will be considered from the point of view, when one of the enemies is stronger than the other one integrally, or when one of the enemies is weaker than the other in certain areas – military, economic, materiel, moral and psychological, scientific, social, informational, political, etc.

Asymmetry in wars made it possible to prevail over or win not only for the one who surpassed the enemy integrally or in most of the above-mentioned spheres but also for the weaker party, as was the case, for example, in the Vietnam War (1965–1973) and the two Afghanistan wars (1979–1989; 2001–2021).

The asymmetry in wars is determined by the triad: weaponry, military art and the armed struggle nature [1]. Notably, weaponry is understood as weapons, combat and non-combat vehicles, military equipment, apparatus, devices and other technical means. The armed forces are equipped with this means to ensure combat and daily activities. Military art should be understood as the theory and practice of preparing and conducting military operations on the land, at sea and in the air. It includes military strategy, operational art and tactics. Armed struggle is the main form of war. This one consists of a set of military actions to achieve specific political goals [2].

The history of wars testifies to the importance of asymmetry and its impact on changing the form of the armed struggle for many centuries – from ancient times to the present. The famous Chinese philosopher and strategist Sun Tzu, in his studying «The Art of War», focused on the fact that any war is based on asymmetry because the strengths of the enemy are taken into account while attacking his weaknesses [3].

Considering the importance of the asymmetry principle, it is relevant to determine the place and role of asymmetry in wars based on the study of the cause-and-effect relationships of asymmetry with weaponry and military art in the course of their development, as well as with the multidimensional nature of the armed struggle.

Foreign and domestic scientists and specialists carried out studies of asymmetry in wars. At the same time, it should be noted that the problem did not studied in direct

formulation, and the primary attention was paid and is paid now to asymmetric wars, which are not always equivalent. Thus, David L. Buffaloe considered the concept of asymmetric warfare as a derivative of the «war» term and included in its content both armed struggle and terrorist acts [4]. Moreover, he proposed considering the U.S. war in Vietnam and the Soviet war in Afghanistan in the past century as an exception to the traditional understanding of war. We can't agree with that. The approach outlined in this paper makes it challenging to conduct a cause-and-effect analysis of the asymmetry in war and changes in its content, taking into account the use of various tools in the armed confrontation by the opposing sides through the prism of the above triad. Moreover, terrorist acts are the subject of research on asymmetric threats, but not asymmetry in wars.

When considering asymmetric war, Ellen Sexton focuses on unconventional strategies and tactics. Ones used by one of the parties in the case when the military resources of the belligerent states are not just unequal but differ so significantly that one of the parties cannot make symmetrical attacks on the other side of the conflict [5]. The disadvantage of this approach to asymmetry in wars is associated with terrorist acts since they are not a classic armed struggle.

Michael Walzer has proposed to understand the asymmetric war as a war between a modern high-tech army and a low-tech insurgency, between a well-trained state armed forces and a poorly trained militia of a non-state political party or movement [6]. The author focuses on the importance of confrontation in the political and information spheres during the war.

Vladimir Gorbulin paid particular attention to the elements of asymmetry in wars [7]. He considered the asymmetric confrontation on well-known historical examples of wars and analyzed the asymmetric capabilities of Ukraine in the event of a military clash with Russia as of 2020. At the same time, the author focused on the unconventional actions in the conditions of an enemy superior in weapons and the presence of its weaknesses. The book draws attention to the need for simultaneous actions during the war within the framework of asymmetry not only in the military, but also in the economic, information and political spheres against the aggressor.

Lukas Milevski is in a similar position regarding the asymmetry in war. He views modern war as an asymmetric event and points to the need to rethink it [8]. The author's all-around research concerns the content of asymmetry, considering its spread not only to the armed struggle but also to other spheres – political, informational, economic, etc.

Euan Findlater's asymmetry studies aim to understand why the great powers (the United States and the Soviet Union) failed in the limited asymmetric wars during the Cold War in the XX century [9]. For this purpose, the primary attention is paid to the substantive aspects of asymmetric war without studying the cause-and-effect relationships between asymmetry and weaponry, military art and the armed struggle nature.

Sergey Shumov considers issues of asymmetry in his «Weapons, Army, War, Battle» book [10]. The author-compiler showed, using the works of such well-known experts as Pavel Winkler, Georg Nicolai, Vladimir Solovyov and Ardant du Picq, the history of the weapons development and within its framework touched upon some issues of asymmetry without systematizing this concept and disclosing cause-and-effect relationships.

The above-conducted analysis, as well as the analysis of studies and expert views of many other highly-competent authors on the issues of military conflicts, demonstrates the relevance of the research pursuance of the asymmetry in wars problem, which is due to the weaponry and military art development, as well as a change in the armed struggle nature.

In this regard, the purpose of our study is to substantiate the place and role of asymmetry in wars, taking into account the weaponry and military art development, as well as the multidimensional nature of armed struggle through the establishment of corresponding cause-and-effect relationships. Setting a goal in this perspective is relevant both for Ukraine from February 24, 2022 [11], and for most countries with limited military capabilities to ensure the ability to counter a potential enemy in the event of war.

Asymmetry and weaponry development

It is known that military operations proceed consistently and depending on a particular order. Such patterns reflect objective processes in the course of military operations. One of these patterns is the dependence of the course and outcome of warfare on weapons, fighting equipment, and munition. This circumstance confirms the importance of the asymmetry principle.

The method for establishing cause-and-effect relationships has been sufficiently studied and is actively used in practice. There are three options for analysis available: from effect to cause; from cause to effect; from effect through cause to primary cause. The essence of the first option is to analyze the changes that have occurred and identify their causes. The second option allows to analyze possible changes in the event of appropriate causes. Finally, under the third option, the changes that have occurred are analyzed with establishing the causes and then the primary causes of their occurrence. To establish cause-and-effect relationships between asymmetry and weaponry development, we will use the first and third options of the analysis.

Asymmetry in the military technology and the weaponry development consists in the invention by humankind of new types of armaments, combat and non-combat vehicles,

instruments, apparatus, devices and other technical means, which allowed earlier and allowed in the present period to gain an advantage over the enemy in the war. At the same time, attention should be paid to the continuity of the above-mentioned triad and the presence of relationships between its components.

Early on, military technology development begins with weapons and is directly related to the history of society, the level of economic and technical advancement, military customs, and the natural forces engagement at a particular stage of social evolution. Thus, the initial reason for the weapons created by man was his desire for survival and the non-contact struggle for his existence in human society [2]. A physically weak opponent usually had a bodily fear of a stronger opponent. Still, under the weapons' invention, he was given an asymmetric opportunity to win and stay alive. Man has always aspired to distance himself as much as possible from the enemy on the battlefield. He understood that a contact encounter could end in a direct physical fight. At the same time, the weaker one risked not only not winning but also losing his life altogether. Thus, arose such blade weapons as a mace, a dagger, an axe, a skewer, a sword, a saber, a spear, a sling, and a bow with arrows. With their appearance, these weapons brought up the asymmetry in wars until the enemy was armed with similar weapons or levelled the advantages of offensive weapons with the capabilities of defensive weapons.

A clear biblical example of asymmetry and remoteness is David's battle against Goliath in the Israelites' war against the Philistines. Physically, the weaker David was armed only with a sling with a few stones. Goliath was tall and physically strong. He was armed with a sword and a long spear, dressed in heavy scaly armour. David fired a stone from the sling at a distance from the enemy directly into the forehead of Goliath and struck him to death. Thus, David attacked the superior enemy in his weak point and won.

Asymmetry is considered one of the guiding principles of war. The desire for asymmetry was and is the reason for developing both offensive and defensive weapons. For example, the invention of stabbing bladed weapons (sword, sabre, spear, arrow, arbalest) became the basis for the design of protective equipment for different parts of the warrior's body (helmet, armour, shield). At the same time, the emergence of new types of offensive weapons made the old means of protection inefficient. In turn, it prepared the objective ground for the invention of new types of defensive weapons and vice versa. A good example is the espringals and siege equipment development due to the emergence of defence constructions and facilities. Greek fire, as an offensive weapon, provided asymmetry in naval battles, where it was first used to ignite hostile ships and thereby created the conditions for victory over the enemy [12].

Weapons and combat equipment gained momentum of active development with the discovery of the metal properties and gunpowder's invention. The firearms production has led to the gradual loss of importance of bladed weapons and espringals and the huge advantage in combat. Thanks to the massive use of firearms, colonists defeated the Indians in North America during the American Indian wars [13].

The desire to gain a firing advantage in combat led to the further development of firearms. There was a transition from smoothbore weapons to rifled ones. This drove a quantum leap in firearms development. Rifled weapons provided an increase in the range and accuracy of shooting and also made it possible to use elongated rotating projectiles. Such ammo had greater efficiency compared to spherical cannonballs for smoothbore artillery. The advent of artillery weapons made it possible over time to retreat from the battlefield and hit enemy targets at a considerable distance from the strike site. In turn, this led to a change in the fortification's infrastructure.

Military history knows many examples of using weapons and combat equipment to provide an asymmetric advantage in battle (operation). So, the appearance of the first hand grenade in the XVI century made it possible to act effectively during the siege of fortresses. For instance, in January 1713, the troops of Peter I knocked Swedes out of positions near Friedrichstadt with the massive delivery of grenades during an attack. Such an onslaught did not allow the Swedes to use defensive artillery. During the First World War, an anti-tank rifle was invented in Germany to combat French and British tanks. Its fire made it possible to hit the target at a distance of up to 100 m and penetrate armour of 30 mm thick [14]. The tanks had 15 mm thick armour at that time. The first tanks engagement during France and Great Britain coalition forces offensive in September 1916 in the Battle of the Somme provided an asymmetry and ensured significant successes against the German infantry: the defence was pushed 35 km along the frontline and up to 10 km deep [15].

It should be noted that the XX century was the era of new technologies, which radically changed the ways of conducting military operations in connection with the advent of rapid-firing and later automatic weapons. In the First World War, tanks, armoured trains, aircraft, aerial bombs and depth charges, flamethrowers, and chemical weapons appeared in the armies' service. In the Second World War, sub-machine guns, self-propelled rocket launchers, aircraft-shaped missiles, ballistic missiles, and submarines became widespread. The United States delivered a strike onto Japan with nuclear bombs [16], which marked the beginning of the era of nuclear weapons and the danger of a qualitatively novel type of war – the nuclear one.

During the post-war period, because of the intensive development of the armed struggle means, new types of weapons, including nuclear ones and combat equipment, appeared in the second half of the XX century. They made it possible to deliver powerful strikes to the enemy accurately

and at a considerable distance from the line of battle contact. Such a capability created an asymmetric advantage against a traditionally armed enemy. A typical example was the NATO air campaign against Yugoslavia in 1999. The engagement of air-launched cruise missiles with GPS navigation made it possible to deliver accurate strikes from aircraft on ground targets of the Yugoslav troops remotely without entering the zone of their air defence systems action [17]. This circumstance provided one of the crucial advantages for the NATO joint forces.

An outstanding feature of the armed struggle's development in present-day conditions is the emergence of breakthrough types of weapons and combat equipment. Their quick introduction into the armed forces affects the change in the forms and methods of warfare. A new step towards the weapons development in the XXI century is the robotic weapons and military equipment based on artificial intelligence (AI) technology: the sentry robot SGR-1; the Mark 15 Phalanx ship-based anti-aircraft artillery system, etc. [18] Such systems are autonomous lethal weapons. It performs combat missions without human control or minimal participation in managing such weapons.

The preceding biblical example of David's victory over Goliath testifies to the asymmetry in the correct use of asymmetrical weapons, considering the enemy's weaknesses. Similar examples occur in modern military conflicts, such as the current Russian-Ukrainian one. Ukrainian specialists created an asymmetric agent for destroying modern Russian armoured vehicles from the RKG-3 outdated anti-tank grenade. Equipped with plastic tail units, the RKG-3 anti-tank grenade under the RKG-1600 designation effectively hits enemy armoured vehicles by drone from a height of up to 300 m and a scatter radius of no more than 1 m [19]. Another example is the use by the Ukrainian side of portable anti-aircraft missile systems simultaneously with obsolete anti-aircraft tubed artillery against enemy helicopters [11]. There is no protection against tubed anti-aircraft artillery on helicopters, due to which several enemy Ka-52 helicopters were shot down. An asymmetric Ukrainian weapon against Russian T-90 tanks is the American FGM-148 Javelin portable anti-tank missile system [20]. These examples should be corroborated by an asymmetric strike on the Russian Moskva guided-missile cruiser with a powerful modern air defence system by the Ukrainian Neptune shore-launched anti-ship missile, after which the cruiser suffered damage, accompanied by the detonation of ammunition on its board and sank during towing to Sevastopol [21].

Given the preceding, it should be noted that military equipment itself, as the experience of local wars and armed conflicts, shows, that without military art is not a dogmatic basis for asymmetric impact on the course of warfare. On the contrary, weapons and combat equipment require skilful and creative engagement by or with man. Military history knows examples when modern military assets with their inept use did not provide guaranteed success, and vice versa, when victory was achieved through the inventively using less sophisticated, and sometimes morally obsolete in technical terms, weapons.

Asymmetry and military art

Since the advent of professional armies, war has become an inevitable phenomenon in the life of nations. Wars have not stopped since their inception. The XXI century is no exception. Along with wars, military art develops too. As the military experience gained, people came to a conclusion about the recurrence of certain phenomena of war. Such recurrence allowed them to generalize and formulate some principles and rules. At the same time, asymmetry issues have always held and continue to keep a valuable place in the military art, which is due, among other things, to the development of weapons and combat equipment. Many experts and researchers believe that the asymmetry achievement in war occurs due to such a military art form as war ruse. This statement should be accepted. War ruse in the military art was understood and is understood now as the theory and practice of stealth and the enemy misleading. As historical military experience shows, war ruse is a necessary condition for achieving surprise in the troops' actions, for the successful and enemy-unexpected application of weapons and combat equipment, as well as new techniques and methods of conducting military operations. The primary purpose of a war ruse is to hide the actual situation from the enemy, impose on him a misrepresentation of it and thereby obtain an asymmetric advantage for pursuing the goal with minimal effort and resources.

In the preparation and conduct of military operations, stealth is usually achieved by keeping the secrecy of the concepts, decisions and plans of the command; vigilance; camouflage of troops, equipment and weapons; compliance with the covertness rules. Field camouflage is considered one of the main ways to achieve stealth [22]. The enemy deception is carried out by disinformation; by simulative actions of troops; by the false targets and military facilities installation; by the existing military facilities, equipment and weapons distortion using different methods and various screening materials.

Stealth and the enemy's misleading, abruptness, and surprise actions concerning the enemy depend largely on the art of command and control of troops by the commander (leader). The basis for the necessary advantage over the enemy in space and time is formed thanks to the skill of ingenuity, unconventional and prompt thinking, experience and professionality of the commander (leader) [23].

War ruse ultimately refers to the art of achieving victory over the enemy by getting an asymmetrical advantage and can be traced historically in the military art of many nations. An acknowledged authority in military art issues, Sun Tzu defined war as follows: the path of

deception [3]. In his treatise «The Art of War», he regarded caution and cunning as the highest principles of military art. There are well-known examples of the war ruse by the greatest Asian warlord Tamerlane: luring with profit and promises, bribing the enemy officials, intimidating the enemy, and introducing discord between the enemy allies. Such actions were successfully and repeatedly used by him during the conquest campaigns [24]. The military actions of the Tatar-Mongol tribes deserve attention. To gain asymmetric superiority having smaller forces, such techniques as ambushing, entrapping the enemy, and concealment concentration with a subsequent rapid attack from several directions simultaneously were widely used. To mislead enemy, mock-ups of warriors were prepared and mounted on horses to make the enemy think of more the Tatar-Mongol equestrians than there were actually. Another way of falsely increasing the number of Tatar-Mongol warriors was to demonstrate equestrians away from the battlefield. In fact, instead of warriors, there were women and youths on horses [25].

In the N. Machiavelli's «The Art of War» magnum opus, war ruse is considered in different ways for its actualization. The author was not related to the army but successfully presented several methods for misleading the enemy. Some of them are also relevant nowadays: how to allocate part of my army to ally unnoticed by the enemy; how to confuse enemy troops during the battle; how to do what the enemy considers impossible, etc. [26]. B. Napoleon was also distinguished by his efforts to obtain asymmetric advantages. He skillfully used artillery many times in battles. A spectacular example is the Toulon siege and capture with a much smaller number of troops than the opposing enemy had. This success was made possible due to the skilful and targeted use of artillery [27].

Another striking example of asymmetry during the First World War is the Russian South-Western Front offensive operation in June 1916, known as the Brusilov Offensive, when the enemy was misled about the main axis of advance since it was combined with simultaneous auxiliary offensive actions in several directions of minor importance [28]. As a result of the operation, the enemy forces were heavily defeated. The camouflage was actively used, and false targets were created to mislead the enemy. Specifically, the British fleet in the First World War had 14 dummy ships similar to the dreadnought. Their task was to mislead the enemy regarding the deployment of the British liner fleet, as well as to hide the facts of the battleships' movement [29].

During the Civil War, various kinds of war ruse were invented and used within the USSR territory to achieve an asymmetric advantage in tactical and operational terms: dispatching a motorcycle mobile group with machine guns stealthily into the enemy's rear [30]; machine gun carriages hidden inside the offensive battle order of cavalry – as it know in the 2nd Cavalry Army case [31] and others.

The Second World War period was saturated with many facts about the stealth techniques engagement and misleading the enemy, which provided a specific advantage. At the initial stage of the war, measures were actively taken within the USSR territory to camouflage military and strategic economic objects and false objects build-up. Thus, in order to mislead enemy aviation, a strategic importance bridge across the Volkhov River was camouflaged as a destroyed bridge, and a false railway bridge was mounted parallel with it [32]. In Moscow and on its approaches, false objects were specially installed to disorient the enemy [29]. Measures to stealth the troops regrouping and the significant strategic reserves concentration allowed the Soviet command to carry out a counteroffensive near Moscow and attain success in the winter of 1941/42, in conditions of the enemy's numerical superiority. The strategic surprise was achieved by the correct choice of the main directions of strikes by the headquarters. The Nazi German troops' defeat at Stalingrad was achieved, among other things, by the enemy's disinformation and distracting actions. All this was aimed at creating the enemy's confidence in the lack of Soviet available forces for a major offensive on the south-western theatre of operations [33]. Great importance in the victory during the counteroffensives of the Soviet army near Moscow and Stalingrad were carefully thought out and successfully implemented measures to camouflage the troops and keep the preparation of these operations secret. When preparing the defence on the Kursk Bulge, the Soviet engineering troops mounted a huge number of false targets, namely trench lines, tank trenches, airfields, roads, troops concentrations, tanks, artillery, etc. Only movable dummy tanks were made of 250 pieces. During the preparation of the 1st Ukrainian Front for the Lviv-Sandomierz operation in the summer of 1944, the concentration of two tank armies and one tank corps was simulated. An about 600 dummy tanks and self-propelled guns, 800 dummy cannons, 300 dummy cars and many other false facilities were installed within the several false areas of concentration. As a result, the German command spent a tremendous amount of ammunition when striking at false objects. It should be noted that in the modern theory of fire destruction, such a result qualifies as the combat potential preservation of own forces. Camouflage measures were successfully carried out during the American-British troops' amphibious landing in Normandy (1944). The Americans actively used tank inflatable mock-ups during the battles in France in June 1944 [34].

The operational art and tactics of partisan detachments, brigades and formations in the territory occupied by the Nazi German troops during the war ensured the asymmetric advantage for the successful destruction of the enemy's forces and resources in its rear in the interests of Soviet troops' operations on the liberation of the USSR territory, as well as of some European states [35].

Due attention was paid to war ruses by Nazi Germany, which was confirmed by the successful invasion to Poland, Denmark and Norway, and then through Luxembourg, Belgium and Netherlands to France. A lot of successes have been achieved through misinformation, misrepresentation, troops' stealth redeployment, and surprise actions. A. Hitler in his book «My Struggle» openly recognized lies as the most potent means of influencing the masses with the primitive simplicity of their spirit. Concerning the USSR, the Barbarossa plan [36] paid particular attention to concealing the intention to attack. Barbarossa plan was signed on December 18, 1940, and on December 19, Hitler, at a meeting with the Soviet ambassador, assured that Germany had no claims to the USSR. The covert preparation and surprise of the attack on the Soviet Union on June 22, 1941, allowed the Nazi German troops to gain the strategic initiative at the beginning of the war. The actions of militaristic Japan to provide stealth and misleading during the war in the Pacific basin were sophisticated. Thus, to ensure the surprise of the Pearl Harbor attack, a Japanese note on the formal termination of diplomatic relations was handed to the U.S. government half an hour before the attack [37].

The Second World War experience confirmed the unconditional importance of asymmetric superiority over the enemy using the military art by many facts. The stealth techniques, camouflage and misleading the enemy, as well as the abruptness of actions, played an essential role in achieving a joint victory over Nazi Germany.

In the post-war period, military art developed in the course of local wars and armed conflicts. The importance of asymmetric superiority was clearly demonstrated during the Korean War. The American experience of misleading the enemy and covert preparing actions, which took place in Sicily, Normandy and other amphibious operations during the Second World War, was successfully applied in the marines landing near the Incheon in September 1950. In order to disinform the enemy, rumours about landing in other places were deliberately spread [38]. A different situation of asymmetric superiority occurred during the U.S. war in Vietnam. A mighty nuclear state with numerous armed forces and the world's advanced economy lost the war to a small and economically backward country. The command of the National Front for the Liberation of South Vietnam, taking into account the absolute advantage of the enemy at sea, in the air, in firepower, the battle conditions, and the terrain type, engaged guerrilla warfare methods: without direct firefights with the enemy; sudden systematic strikes on enemy targets; widespread use of subversion and ambush [39]. Airmobile operations, misleading the Vietnamese command, simulating actions and stealth moving troops did not help the Americans.

The experience of asymmetry gathered in previous centuries remains relevant for modern military conflicts in order to provide an advantage over the enemy in military operations. During the war of multinational forces against Iraq in 1991, the advantage in weapons and combat equipment, as well as the combat experience, was on the coalition side. At the same time, the Iraqi command, using its own combat experience of an eight-year military campaign against Iran, actively engaged the asymmetric actions. Operational and tactical camouflaging was carried out. A huge number of various dummy tanks, aircraft, false airfields and launch positions of Scud-type operational-tactical missiles were used. Numerous false radio networks were established, and camouflage screens were used too. Such actions misled the coalition forces command and caused the low success rate of the first echelon air strikes [40]. During the air campaign against Yugoslavia in 1999, the absolute advantage of the NATO joint armed forces was. NATO estimates of the strikes' results against Yugoslav troops often did not consistent with the reality. This was driven by the implementation of operational and tactical camouflage measures aimed at preserving the Yugoslav army. Numerous false targets were installed: inflatable copies of armoured vehicles, tanks, aircraft, anti-aircraft systems and even bridges. They were mounted in the strictest secrecy in different places at a sufficient distance from settlements and military units. Such measures allowed the Yugoslavs to retain a significant part of their military equipment [40]. It should be emphasized that the asymmetry meaning in the military art changes in combination with the change in the capabilities of weapons and combat equipment based on gathered combat experience.

Asymmetry and armed struggle nature

As discussed, the main form of confrontation in wars is armed struggle. It does not never stop and is in the process of constant development. The armed struggle nature is determined by the set of the essential features. They characterize armed struggle as a particular phenomenon in a specific historical period. At the same time, the determining factors are the means, forms and methods of armed struggle and the theatre of military operations.

The evolution of the forms and methods of armed struggle demonstrates the timely response to changes. Ones occur both in space and time due to continuous improvement and development of new weapons and combat equipment. Military operations in the era of first-generation wars [41] were characterized by the bladed weapons and were conducted on land and sea. In the era of second-generation wars, with the advent of gunpowder and smoothbore firearms, the forms and methods of armed struggle have undergone changes. Military operations continued to be conducted on land and sea but at a distance determined by the weapon's range of fire. The armed struggle nature of third-generation wars was driven by technological progress and evident in the mass use of rifled multi-shot small arms and rifled artillery. Such weapons

had much greater range, rate of fire, accuracy, and destructive power than smoothbore ones [42]. Wars began to require the use of a significant number of troops and resources. Vertical components were added to the horizontal dimensions of land and sea theatres of military operations; they are the underwater and air [43]. Armed struggle in the fourth-generation wars was characterized by automated and reactive weapons use, motorized combat vehicles and a vast number of troops. The nuclear weapons of fifth-generation wars have radically changed the forms and methods of armed struggle. In the sixth-generation wars, the decisive role is assigned not to numerous armies but high-precision non-nuclear weapons. Such weapons are equivalent in their destructive power to nuclear weapons and sometimes exceed it. Armed struggle in such wars moved into the atmosphere and outer space, which became the main theatre of military operations. Modern high-precision weapons are gradually turning into a key factor in the armed struggle. The mass use of such weapons, as the experience of recent local wars shows, sometimes ensures the achievement of the war objectives even without the ground troops' commitment [44].

The rapid development of high-precision weapons, the expanding military operations into the atmosphere and outer space, and a significant increase in the range of ballistic, cruise, and airborne missiles have led to a great expansion of spatial activities. In current conditions, the armed struggle acquires a multidimensional character, in contrast to the historical wars, when the armed struggle nature was determined mainly by horizontal dimensions, and the vertical, i.e. air coordinate was an auxiliary one without a space segment. Combat operations at the present stage are conducted simultaneously in the air, on land and at sea, actively using the space segment and practically without spatial restrictions. Along with expanding the spatial scope of military operations, an essential feature of modern armed struggle is the change in time profile, owing to its high dynamics.

Changing the armed struggle nature provides the potential for the asymmetric military advantage of some state or coalition of states in the war when the warfare participants' capabilities correspond to different generations of wars. At the same time, as shown in the examples above, the asymmetric military advantage was not always realized for the benefit of those states that potentially held it.

The war of the Soviet Union in Afghanistan (1979–1989) ended with the withdrawal of the Soviet troops' contingent from the territory of the country. The USSR initially had a potential advantage in modern weapons and combat equipment, operational art and tactics, in contrast to the Afghan mujahideen, who in their military capabilities were at a level of the third- and fourth-generation war [45]. A similar situation took place in the war of the U.S.-led coalition forces in Afghanistan (2001–2021). U.S. troops were withdrawn from Afghanistan in 2021. Under the Enduring Freedom anti-terrorist operation in Afghanistan, the western coalition's military capabilities corresponded to the sixth-generation wars, while the Taliban of Afghanistan – to the fourth-generation wars. The asymmetric advantage was actualized, and the initial stage of operation ended with a coalition victory in record time [18]. However, the unaccounted aspects of the land theatre of operations, the tactics of Taliban guerrilla and terrorist actions with time forced the coalition troops to leave Afghanistan after 20 years of being on its territory [46]. The war of U.S.-led multinational forces against Iraq (1991) was a war of coalition with the military capabilities of sixth-generation wars against a state with the military capabilities of fourth-generation wars. The advantage was actualized, whereby the coalition won [40]. Combat operations were conducted simultaneously on land, at sea and in the air with the active involvement of the space segment. A similar situation took place during the NATO air campaign against Yugoslavia (1999). The outstanding feature of this war was that the coalition did not engage ground forces to achieve the operation's goals. The extensive use of precision-guided weapons played a decisive role in achieving the goals of NATO's Allied Force military operation [47].

Conclusions

The results of the study allow us to draw several conclusions. First, asymmetry was in the past and is now essential. It plays an especial role in wars, considering the development of weaponry and military art as well as the multidimensional nature of the armed struggle.

Second, the military equipment itself is not a dogmatic basis for asymmetric advantage in warfare, which is confirmed by the historical experience of military conflicts. Military history knows many examples when the inept use of modern military assets did not provide an asymmetric advantage, and vice versa, when such advantage was achieved through the creative use of less sophisticated and sometimes morally obsolete, in technical terms, weapons.

Third, the asymmetry issues have always occupied and continue to occupy an important place in the art of war, which is determined, among other things, by the development of weapons and combat equipment. Military art ensures the achievement of asymmetry in war, particularly such a constituent of it as a war ruse. War ruse has historically been a necessary condition for gaining an asymmetric advantage and achieving surprise in the actions of troops, successful and unexpected for the enemy use of weapons and military equipment, as well as new techniques and methods of warfare. Historically, war ruse is a necessary condition for getting an asymmetric advantage and achieving surprise in the troops' actions, successful and unexpected for the enemy weapons and combat equipment employment, as well as new techniques and

methods of warfare. War ruse is conditioned by the commander's (leader's) skills of ingenuity, unconventional and prompt thinking, experience and professionality, which are fully engaged in the process of command and control of troops.

Fourth, the change in the armed struggle nature, as confirmed by historical experience, provides the potential for the asymmetric advantage of the state or coalition of states in wars when the warfare participants' capabilities correspond to different generations of wars.

And fifth, the place and role of asymmetry in wars determining is an essential basis for choosing the methods of preparing any state for military operations and warfare conduct, taking into account the armed struggle nature, weaponry and military art. The study of the military art with an emphasis on the war ruse issues and achieving an asymmetric advantage under military education and training will ensure the command staff advances in future wars.

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