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## BREAKING THROUGH THE ENEMY'S DEEP DEFENSE: A HISTORICAL ASPECT

*The problems of breaking through the enemy's prepared defense in historical retrospect, the use of various approaches to solve the mission of an offensive operation at the expense of original techniques and methods and non-standard solutions are considered. Along with classical factors, such as massing forces and means, stealth, surprise, misleading the enemy, an important role in achieving success is played by the art of commanders in implementing plans for offensive operations.*

**Keywords:** *offensive operation, prepared defense, a breakthrough of a deep-echelon defense.*

### Introduction

**Statement of the problem.** Achieving victory over the enemy in most wars, both past and present, of the 19th and 20th centuries is impossible without inflicting a decisive defeat on him and establishing control over the enemy's territory or the territory occupied by him. These missions

are solved by the armed forces of states during offensive operations, the most difficult of that are offensive operations against the enemy's well-prepared, deeply echeloned defenses.

As a rule, defensive actions can be carried out to stably hold territory where its loss is unacceptable; to save forces, to ensure the concentration of efforts on the directions of offensive actions; to gain time to accumulate reserves and go on the offensive; to disrupt the enemy's offensive and inflict as many losses as possible on him.

An important role in building a defense is played by its depth, which reduces the risk of rapid penetration by attacking forces, provides more space and time for inflicting consistent fire damage on the attacking side, since the latter is forced to concentrate forces and resources on a narrow section of the front, creating conditions for its own vulnerability.

The issues of defense and offense have been widely studied throughout the existence of the art of war and theoretically outlined in a number of doctrinal and scientific publications, but each new war raises the question of how to seize territory controlled by the enemy with as few losses as possible.

**Relevance of the research.** At the current stage of the Russian-Ukrainian war, the Armed Forces of Ukraine, in the process of liberating temporarily occupied territories, faced a new challenge – the need to break through the enemy's deep-lying defenses.

It should be emphasized that in the European theater of military operations, no army has performed similar tasks since the Second World War. The course of battle activities in the summer-autumn of 2023 demonstrated a number of practical problems, the need to overcome which significantly hindered the advancement of units of the Armed Forces of Ukraine. This is, first of all, about the construction by the enemy of a strip of continuous minefields with a high density of mining and, in general, the creation by the enemy of all types of anti-personnel and anti-tank engineering barriers; the presence of the enemy's system of field fortifications, bunkers and bunkers connected by communication passages, underground galleries, command posts, etc. Added to this is the factor of the enemy's superiority in the air, the high density of tactical reconnaissance and destruction means based on UAVs together with electronic warfare integrated into the defense system, as well as the lack of quantitative superiority of the Armed Forces of Ukraine in artillery systems and armored vehicles.

This article examines four offensive operations in historical retrospect, where military leaders faced the extremely complex task of preparing and conducting a breakthrough of the enemy's deep-echelon defenses: the German offensive through the Ardennes in 1940, the Soviet breakthrough of the Wehrmacht's defensive positions on the Mius River in the eastern part of the Donbas in 1943, the German offensive in the Ardennes in late 1944, and the breakthrough of the Israeli defense line (the Bar Lev Line) by the Egyptian army in 1973 during the Yom Kippur War. The four offensive operations against enemy positions prepared in advance in terms of engineering outline four different types of philosophy for solving the breakthrough problem and four different types of preparation for an offensive operation.

**Analysis of research and publications.** The historiography of the history of World War II and the Yom Kippur War has tens of thousands of positions. The analysis of the Wehrmacht operations in the Ardennes in 1940 and 1944-1945 was carried out based on the classical works of American and British military historians published in recent decades. This is primarily the work of G. Cole [3], J. Kaufman and R. Jurg [8], E. May [9], J. Jackson [7] and B. Bond [2]. An analysis of the scientific literature devoted to military operations on the Eastern Front of World War II in 1943, in the context of studying the history of the breakthrough of the defensive line by Soviet troops on the Mius River, allows us to distinguish: among the works of Ukrainian researchers – studies on operations in the Donbas in 1943 [17]; Among the Soviet and Russian works are the outline of the history of military operations in the Donbas by A. Ershov [16], as well as the collective work of G. Matyshov, V. Afanasenko, E. Kryenko [18] devoted to the mentioned topic; among the works of Western authors are the collective work of K.-H. Friser, K. Schmider, K. Schönherr, G. Schreiber, K. Ungvari, B. Wegner on operations on the Eastern Front in 1943-

1944 [4], as well as the generalizing monographs of V. O'Neill [10] and D. Stachel [11]. The description and analysis of the 1973 operation "Badr" was based on the classical works of J. Gavrych [5] and D. Asher [1]. To understand the broader context of the Yom Kippur War, the collective monograph edited by A. Syniver [12] and "Encyclopedia of the Arab-Israeli Conflict" (edited by S. Tucker) [6].

**Purpose of the article** is to identify the general features and specifics of four offensive operations during World War II and the Yom Kippur War, to show different approaches to planning offensive operations against deep-echelon enemy positions and the implementation of these plans in practice.

## Presentation of the main material

**Operation "Sickle Cut", May 10-21, 1940.** From the moment the enemy armies began to deploy on the Western Front of World War II, the Wehrmacht command faced extremely difficult tasks – to overcome a powerful defensive line – the Maginot Line and ensure the rapid defeat of France, whose army was considered the strongest on the European continent [8].

Maginot Line (Ligne Maginot) – 380 km long from the Ardennes to southern Alsace. A system of reinforced concrete fortifications, forts, underground galleries, barracks, bastions, power plants, and ammunition depots. It included 44 heavy artillery blocks, 62 medium pillboxes, 365 casemates, 17 observation posts, 89 interval shelters, over 150 turrets of all types, thousands of blockhouses, and an entire infrastructure of rolling railways, military roads, and apartments. Electric trains connected the largest artillery blocks with ammunition depots and quarters, where fortress infantry regiments, positional artillery regiments, and engineering units could be located. The number of garrisons of the Maginot Line in the early spring of 1940 was 300,000. The support strip with a depth of 10 km included barbed wire fences and continuous minefields, a system of blockhouses, outposts and strong points with a depth of 20-30 km. On the border with Belgium, the Maginot Line had the appearance of field fortifications, reinforced with minefields and engineering barriers.

The German command saw the only option for solving the problem of defeating France in bypassing the reinforced concrete fortifications of the Maginot Line by occupying the neutral Netherlands and Belgium and attacking through field fortifications in northern France [9]. The initial version of the plan for the German invasion of France bypassing the Maginot Line envisaged an attack by infantry units (up to 500 thousand men) with the aim of pushing the enemy troops back to the Somme River. After that, Germany was to pause until 1942, accumulate resources and break through the enemy's defenses with tank units. Hitler rejected the plan and forced the development of a new document taking into account the experience of the Wehrmacht campaign in Poland. The new plan envisaged the combined use of tank and infantry units in northern Belgium. However, this version of the plan also seemed conservative to Hitler, and he involved General Manstein in its correction, who proposed to concentrate the main attack of the tank formations (Army Group A) in the Ardennes – an area that was considered impassable for tanks. Having overcome the mountains, the tank formations were to change the direction of movement from west to south and enter the rear of the French troops. At the same time, Army Group B was to deliver a powerful blow at the junction of Belgium and Holland in order to tie up the enemy's forces and confuse him about the direction of the main attack. With the same goal, Army Group C was to attack the French forces on the Maginot Line. Manstein's plan was somewhat modified by Guderian and Brauchitsch (Fig. 1.) and approved for implementation [7].

The Allied forces (France, Britain, the Netherlands and Belgium) were united into two army groups. The 2nd Army Group (commanded by General Pretella) had an exclusively defensive task – to hold the Maginot Line. The 1st Army Group (commanded by General Biyot), consisting of the 1st, 7th, 2nd and 9th armies, in the event of a German offensive through the Netherlands and Belgium, was to advance to the aid of the Belgian and Dutch armies to defend along the Albert Canal and the Meuse River (the second reserve line of defense was deployed along the rivers Diel

and Meuse, the third reserve line of defense was along the Scheldt River, along the Franco-Belgian border). The weakest of the Allied defenses was the Ardennes area in southern Belgium, which was considered generally impassable terrain, unsuitable for warfare by mobile units [2].

In the early spring of 1940, the German command began a gradual redeployment of its troops from the occupied part of Poland to the borders of the Netherlands, Belgium and France. At the same time, the Germans avoided excessive concentration of troops, and their accumulation was carried out as slowly as possible (in connection with which the date of the start of the offensive was postponed 30 times). The areas of concentration of troops were disguised as camps for recovery and training grounds for combat training. In order to mislead the enemy, units were concentrated in the German part of the Ardennes, which since the First World War had been a rear area for the rest of German troops.

Table 1

Composition of the opposing sides forces of the on the Western Front of World War II  
(May 1940)

Composition of the forces and means of the offensive group:	Composition of forces and means of the grouping of troops in defense:
135 divisions (3 million troops) 7,378 artillery systems 2,439 tanks 3,286 combat aircraft 120 thousand cars	135 divisions (3 million 300 thousand troops) 13 thousand 974 artillery systems 4 thousand 71 tanks 3,000 combat aircraft (The Allies outnumbered the Germans in fighter aircraft, with 1,106 to Germany's 836. The French and British also had more aircraft in reserve) 300 thousand cars

The Wehrmacht command had to solve a number of problems before the operation began:  
to overcome the impregnable French fortifications on the Maginot Line;  
to level the enemy's defensive lines along the numerous water obstacles in the Netherlands  
and Belgium;

compensate for the enemy's superiority in tanks and manpower;  
to neutralize the enemy's superiority in aviation and artillery;  
to compensate for the lower level of mechanization of their troops (Wehrmacht infantry  
units in 1940 used horse-drawn transport).

The first problem was solved by the unexpected choice of the main strike location – the wooded mountains of the Ardennes, with the use of advancing tank formations in the first echelon. Thus, the Wehrmacht avoided a frontal attack on enemy fortifications.

The second problem was solved due to successful landing operations in the rear of the Belgians and Dutch and the presence of well-trained infantry assault groups, which (like the landing units) were saturated with anti-tank weapons and mortars, which allowed small groups to hold bridgeheads, bridges and other objects in the enemy's rear until the approach of the main forces and destroy the enemy's persistent defenses on previously fortified and prepared lines along water obstacles.

The third problem was solved by an innovative solution – the creation of groups (formations) where tanks and infantry on mechanized vehicles operated together. German tank divisions included, in addition to tank units, highly mobile infantry and engineering units that advanced together with tanks and solved current problems – mine clearance, destruction of engineering obstacles, fortification, etc. An important advantage of German tank troops was the equipping of their tanks with radio communications, which allowed them to quickly navigate the battlefield and, maneuvering, create a shock and fire advantage in the breakthrough area. The

commanders of German tank units acted almost autonomously, based on the situation on the battlefield. The Germans compensated for the shortage of personnel by forming the first echelon from units whose personnel had combat experience from the campaigns of 1939-1940. Given that the Allied troops had no combat experience in modern warfare, their numerical advantage was offset by the quality of the German units.

The German command solved the next problem by launching a surprise massive air strike on French and Belgian airfields a few minutes before the ground forces began their offensive. This led to the Germans gaining air superiority. The enemy's artillery superiority was reduced due to the better quality of German artillery systems, the higher level of personnel training, and the ability

to respond more quickly to changes in the battlefield situation due to a more advanced communications system.

The latter problem was solved by transferring all vehicles to advanced tank formations and artillery units, which increased their maneuverability and autonomy in a combat situation.

Thanks to these measures of the German command, the course of hostilities during Operation "Sickle Cut" turned out to be extremely fleeting and overwhelming for the enemy. At 5:30 on May 10, 1940, the Wehrmacht launched an offensive along a 150 km front. A landing force (up to 1,000) was landed in the rear of the Dutch and Belgian armies to seize bridges and disrupt enemy logistics. The Allied command mistakenly assessed the location of the main strike and began redeploying the most combat-ready troops to the border between Belgium and Holland. This maneuver did not help

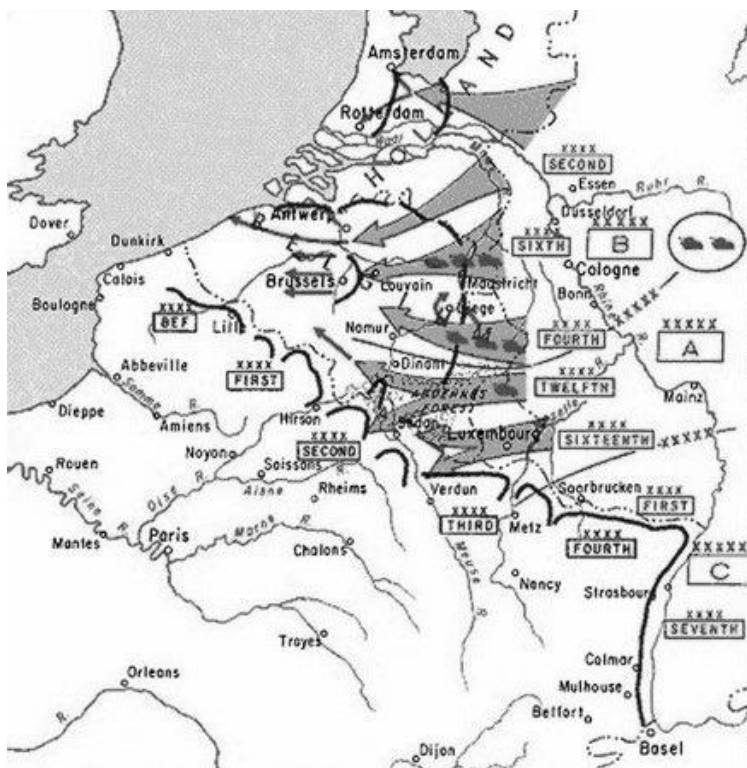


Fig. 1. Operation plan for the German invasion of France, Belgium, the Netherlands and Luxembourg (May 10-21, 1940)

the Dutch army, whose defenses had been breached on May 12, but it caused chaos on the roads of Belgium and northern France. The French managed to concentrate forces for a counterattack in Holland only on May 14, but by then the Netherlands had already capitulated.

In northern Belgium, the Wehrmacht's 6th Army managed to break through the Belgian defenses along the Meuse River on the first day of fighting and seize bridgeheads on the southern bank of the Albert Canal. At the same time, German paratroopers captured the Belgian fort of Eben-Emmael, which was a rear base for the defense of the Albert Canal line. On the night of May 11, the Belgian army withdrew to a new line of defense along the Diel River. By May 14, French and British troops had arrived at this line. The Wehrmacht's 6th and 18th Armies simulated an attack on Allied positions along the Diel line. Under the cover of these actions, the Höpner Panzer Corps was redeployed south to the Ardennes, where on May 10-14, the Panzer Corps of Goth and Guderian broke through and moved along the mountain roads to the southwest. French and British intelligence misjudged the situation. They regarded the movement of enemy tank troops in the Ardennes as a diversionary action. Despite the fact that German tank troops had broken through the defenses along the upper reaches of the Meuse River on May 11, the French sent light cavalry

units to counterattack, which were considered most suitable for operations in the mountains. Only on May 15, when German divisions advanced to the valley between the Meuse and Oise rivers, did the French command realize the threat of enemy armored units reaching the rear of the Maginot Line and the Allied troops in Belgium. The French tried to contain the Germans at the Battle of Sedan with the 2nd and 9th armies, but were defeated on 15 May. On 16–17 May, the Germans reinforced their flanks with infantry divisions, and on 18–19 May, the Wehrmacht's tank units expanded the breakthrough to the west and south. The French command sought to maintain communication between the 1st and 2nd army groups, trying to prevent the German advance between Arras and Peronne and access to the English Channel, which threatened the encirclement of the 1st army group. However, on 19–20 May, in the Battle of Arras, German tank units broke through the front and on 21 May advanced to Abbeville and the English Channel coast. Allied troops in Belgium were surrounded [14]. During the 11-day operation, the continent's strongest army, reinforced by Allied troops, was utterly defeated, and France was doomed to surrender.

***The Ardennes Campaign, December 16, 1944 – January 25, 1945.*** Four and a half years later, in virtually the same theater of operations, the German Wehrmacht again conducted an offensive operation to break through the defense line of the American and British troops, known as “Watch on the Rhine”, December 16, 1944 - January 25, 1945.

The Allied defensive line was built along the Meuse and Saar rivers and the Ardennes mountains. The area west of the Ardennes was considered by the Americans as a sufficiently safe place for the recovery and rest of the units that had suffered heavy losses in the battles in Europe. Given that east of the Ardennes in German territory there was a similar area for the recovery and rest of the German units, American intelligence did not consider the Ardennes as a possible direction of the enemy's attack. As in 1940, the Allied command considered it impossible to attack tank and mechanized units without sufficient air cover through the forested mountains in winter [3].

Instead, the German command set itself the following goal of the operation: to capture the port of Antwerp with its huge fuel and fuel reserves and to divide the American-British group of troops on the coast of the English Channel and the North Sea. The strike groups were to consist of the 5th and 6th Panzer Armies, and the flank cover groups were to consist of the 7th and 17th Combined Arms Armies. With a sudden powerful blow, the tank armies were to break through the American defenses and by the fourth day of the operation cross the Moselle River. Over the next 4-6 days of the operation, the cities of Brussels and Antwerp were to be captured. The suddenness of the operation, its powerful start, low cloud cover and thick fog were to completely eliminate the Allied superiority in the air.

Table 2

Composition of the opposing sides forces in the Ardennes operation

Composition of the forces and means of the offensive group		Composition of forces and means of the grouping of troops in defense	
<u>As of December 16:</u> 406 thousand units; 557 tanks; 667 self-propelled guns; 1261 AFV; 4224 artillery systems; 1,500 combat aircraft	<u>As of January 16:</u> 383 thousand units; 216 tanks; 414 self-propelled guns; 917 AFV; 3,256 artillery systems; 700 combat aircraft	<u>As of December 16:</u> 230 thousand units; 483 tanks; 499 self-propelled guns; 1921 AFV; 971 artillery systems; 3 thousand combat aircraft	<u>As of January 16:</u> 700 thousand units; 2,428 tanks; 1912 self-propelled guns; 7 thousand 79 armored personnel carriers; 3,181 artillery systems; 2,400 combat aircraft

The success of the German offensive operation at the initial stage was ensured by the following factors:

correctly chosen weather conditions and the location of the main strike, which neutralized the Allied superiority in aviation and allowed them to advance to operational depth in certain areas of the offensive;

extraordinary camouflage measures were used, which did not allow the strike groups to be detected and the exact number of tanks to be established (tanks were often disguised as self-propelled guns and armored personnel carriers);

sabotage operations behind enemy lines, which disorganized communications and sowed panic in his ranks;

massive artillery preparation in the first hours of the offensive along the front line and demoralizing strikes deep behind the enemy.

However, the course of hostilities (Fig. 2), despite the initial success of the Germans, from the first hours demonstrated certain flaws in the planning of the Wehrmacht offensive operation. On December 16, 1944, at 05:30, a 90-minute artillery preparation began – 1,600 artillery systems fired along a 130 km front. The Americans took this as the beginning of a local counterattack on the previously weakened section of the Siegfried Line. Severe snowstorms covered part of the Ardennes, so Allied aviation remained on the ground. Weather conditions complicated the movement of German ground troops, and poor traffic control led to massive traffic jams and fuel shortages.

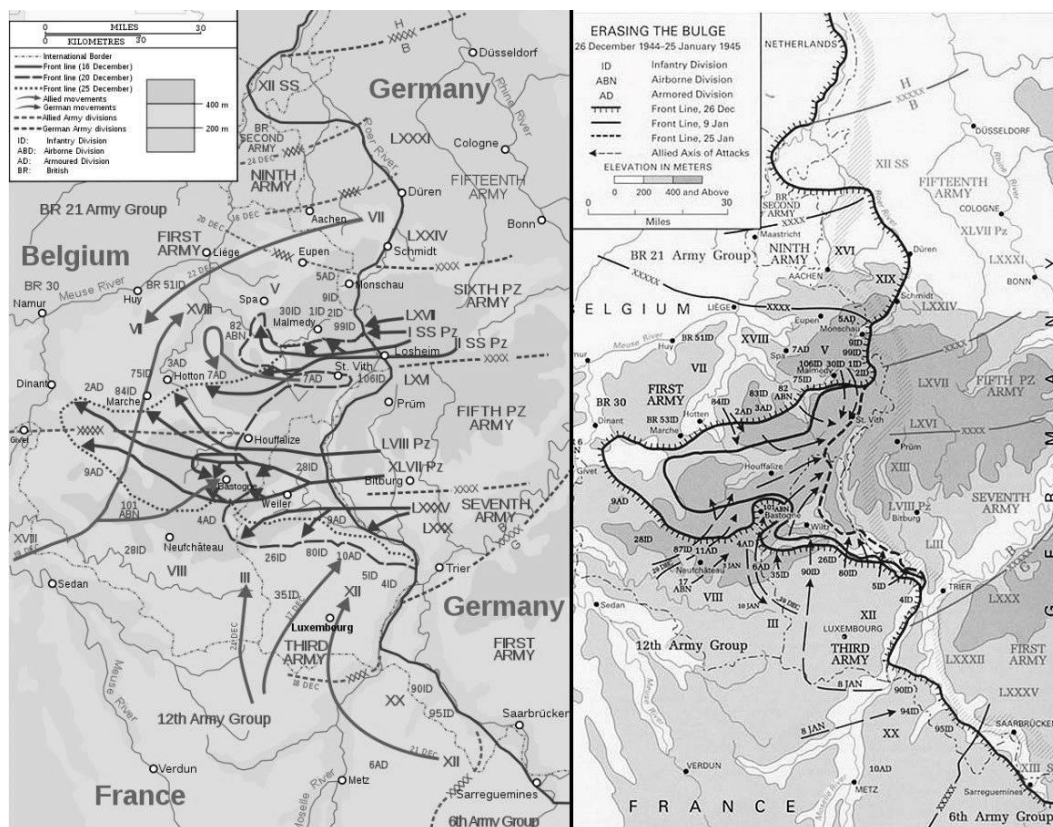


Fig. 2. The parties' actions scheme in the Ardennes Operation December 16, 1944 – January 25, 1945.

In the center, the 5th Panzer Army was advancing on Bastogne and St. Vith (transport hubs of strategic importance). In the south, the 7th Army was advancing towards Luxembourg, trying to protect the flank from Allied attacks. The 6th Panzer Army in the north, due to fierce resistance



from the 2nd and 99th American divisions, was forced to change its route and fell behind schedule by 16 hours.

On December 17, the Germans launched two large-scale sabotage operations in the rear – “Griffin” and “Hawk-Krogulets”. The first consisted of sending 3 thousand German saboteurs in American uniforms to the American rear, who disorganized communications and sowed panic; the second - in the landing of 1,300 paratroopers to capture the important Eupen-Malmedy crossroads and block American reserves. Operation “Griffin” was successful, while “Hawk-Krogulets” was not successful.

A major mistake of the advancing German troops was the destruction of American prisoners captured by the 6th Panzer Army in Melmed on December 17. This massacre became known to the Americans and strengthened their resistance. In general, the striking forces of the 6th Panzer Army of the Germans, having advanced only 15 km in the first days of the offensive, significantly deviated from the main direction to the southeast and were blocked and defeated by the Americans on December 19-21, 1944.

The 5th Panzer Army advanced more successfully, advancing up to 35 km and defeating the 106th American Division in the Battle of Schnee-Eifel (the Americans lost 7,000 killed). By December 23, it had captured Saint-Vith, which was a belated success, as the German plans had called for the capture of this important settlement by 6:00 p.m. on December 17.

Unlike the northern and southern flanks, where the German advance was hampered by great difficulties, in the center the German gains were much more substantial. The 2nd Panzer Division of the 5th Panzer Army was at the forefront of the offensive, crossing the Urte River on 21 December and by the end of that day reaching the town of Marche-en-Famenne, which was well defended by the American 84th Division. General von Lütwitz, commander of the German 37th Panzer Corps, ordered the 2nd Panzer Division to turn west towards Dinan and the Meuse, leaving only a blocking force at Marche-en-Famenne.

On 22-23 December, German troops reached the Foix-Notre-Dame forest, a few kilometres from Dinan. The narrow corridor of attack created considerable difficulties, as the divisions were constantly threatened by flank attacks. On 24 December, German troops made their deepest advance to the west. Lera's Panzer Division occupied the town of Sel, and a little further north, elements of the 2nd Panzer Division were near the Meuse near Dinan at Foix-Notre-Dame. Hastily assembled British blocking forces on the east bank of the Meuse prevented the German Battle Group Böhm from approaching the Dinan bridge. On Christmas Eve, the German advance in this sector came to a halt, as Allied forces threatened to counterattack the flank of the 2nd Panzer Division. The German command suggested that Hitler stop the offensive and go on the defensive at the achieved lines, but he insisted on continuing the offensive. Quite expectedly, on December 28, the 2nd German Panzer Division found itself surrounded, cut off by flank attacks by the Americans. By the end of the year, the 3rd American Army had broken through to Boston, surrounded by the Germans, and lifted the siege of the city.

On January 1, 1945, the Wehrmacht tried to resume the offensive. Taking advantage of the clear weather, the Luftwaffe launched a large-scale attack on American and British airfields in Holland and Belgium. But, despite heavy losses (550 aircraft), this did not deprive the Allies of air supremacy. The Americans, with the forces of the 1st and 3rd armies, tried to cut off the German Ardennes salient near Boston on January 1-8. After a week of fighting, Hitler allowed his generals to withdraw their troops to the east. American and British troops unsuccessfully tried to surround the forces of the 5th Panzer Army. By January 25, the Germans had retreated behind the Siegfried Line [3].

Having reviewed the course of hostilities, it is worth asking the question: why was the Wehrmacht unable to repeat the success of the Ardennes offensive? In 1944-1945, the general defeat of the German offensive was due to:

limited fuel and lubricants resources (20 thousand tons), which were only enough for 8-10 days of operations;



the inability of the Germans to destroy the logistics of the Allies and prevent the enemy's reserves from being brought up to the line of combat contact, which allowed the Anglo-American troops to increase the forces and means of their own group, stop and repel the advancing German units;

underestimation of the ability of individual enemy units to put up sustained and long-term resistance, which disrupted the advance schedules of the advancing German units;

miscalculations and failures during airborne and sabotage operations behind enemy lines; a reassessment of the conflicts between the British and American military command, which did not prevent the Allies from conducting a successful defensive operation.

**Breakthrough of the "Mius Front" by Soviet troops, July–September 1943.** In the summer of 1943, one of the strategic goals of the Soviet troops was to tie up, and if possible, defeat, the grouping of German troops in the Donbas.

In order to prevent the advance of Soviet troops to the west of the Mius River, German troops began to build a deep-echelon defense line along the line of this river at the end of 1941, which was called the "Mius Front". It ran from the coast of the Sea of Azov along the western (higher) bank of the Mius River to the town of Krasny Luch (now Khrustalne) in the Luhansk region. The three defense lines included various fortifications and used a complex natural

landscape (the terrain and natural obstacles made it difficult to use tanks). The defense strip extended 180 km along the front and was up to 50 km wide. The depth of the minefields was over 200 m, the density of pillboxes and bunkers was up to 20–30 per km<sup>2</sup>, and the total length of the trenches was up to 18 thousand km [4].

The first attempt to break through the German defensive line was made by the Soviet troops during the Urban Offensive Operation (July 17 – August 2, 1943). It was carried out by the forces of the Southern Front (Fig. 3). The main blow was delivered by 5 UA and 28 A from the Kuibyshev – Dmytrivka area in the direction of Uspenskaya, Artemivka, Fedorivka. The 2 GA was in reserve along with two attached mechanized corps. The total number of troops was 271,790 people [15]. The Soviet troops were opposed by three corps of the 6th Army, consisting of 11 divisions and 5 assault battalions (on July 28, 1943, 2 SS tank corps and several aviation groups were additionally transferred from the Kharkiv direction).

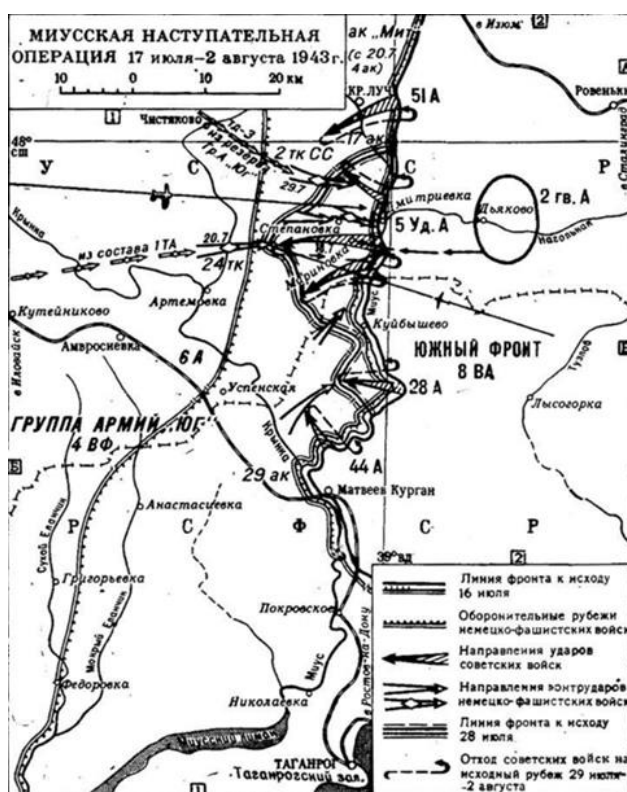


Fig. 3. The Mius offensive operation plan (July 17 – August 2, 1943)

The Soviet offensive began on July 17, 1943, after a powerful artillery preparation. The German troops immediately used aviation to inflict damage on the advancing Soviet troops and their reserves. In the direction of the main attack, the troops of the Southern Front managed to break through the first defensive line and seize a bridgehead in the Stepanivka-Marinivka area, up to 10 km deep and up to 30 km wide along the front. At the cost of bringing troops from the army reserve into battle, the enemy managed to stop the Soviet offensive [13]. The troops of the Southern Front were unable to develop the achieved success, expand the breakthrough and inflict a devastating defeat on the enemy. On July 30, 1943, the enemy launched a counterattack and, under the threat of encirclement, forced the Soviet troops to abandon the bridgehead. The total

losses of the Soviet troops amounted to 61 thousand people, of which more than 15 thousand – irreversible [15].

Thus, the frontal attack of the Soviet troops on the well-fortified defensive line was not successful. The numerical superiority of the Soviet troops in the conditions of enemy dominance in the air turned out to be insufficient. In addition, German air intelligence provided its command in advance with information about the preparation of the Soviet troops for offensive actions, which allowed the German side to take timely measures to organize defense.

The experience of the Mius operation was taken into account by the Soviet command when planning and conducting the Donbas operation (August 13 – September 22, 1943), during which the enemy's defense on the Mius River was successfully broken through. The decisive factor for the success of the operation was the withdrawal of a significant part of the enemy's forces to the Kharkov direction, where the Soviet troops of the Steppe and Voronezh fronts carried out the Belgorod-Kharkov offensive operation (August 3-23, 1943). In addition, the German command did not expect a new assault on the fortified defense line on the Mius River.

The Soviet troops of the Southern and Southwestern Fronts, which participated in the Donbass operation, numbered about 1 million people, 21 thousand guns, 1257 tanks, 1.4 thousand aircraft. In contrast, the German group numbered 540 thousand people, 5.4 thousand guns, 900 tanks, 1.1 thousand aircraft [15].

To break through the defense line, the Soviet troops concentrated their superior forces on a narrow section of the front. On the Southern Front, in a strip of 10-12 km, an artillery fire density of at least 120 barrels per kilometer was ensured. On the Southwestern Front, it was decided to reduce the width of the breakthrough section to a minimum [13].

On August 13, the troops of the Southwestern Front launched an offensive, forcing the Seversky Donets River. Although the German troops managed to stop the offensive on the Mius River line, they had to transfer a significant part of their forces from the area that the troops of the Southern Front were to storm to the Kharkov direction. To a large extent, this ensured the success of the offensive actions of the troops of the Southern Front, which began on August 18. On the very first day, the troops of the Southern Front broke through the line of enemy fortifications by 8-9 km. Moving forward, the Soviet troops simultaneously expanded the breakthrough. As of August 20, the breakthrough had already reached 24 km in depth and 16 km along the front. On the night of August 24, the Soviet troops severed the railway connection of the German group in the Donbas with Taganrog. On August 25-27, the Soviet troops suspended the offensive, regrouping and replenishing ammunition. On August 28, offensive operations resumed and, after three days of fighting, ended with the capture of the Savur-Mohyla mound, a key height in the system of German defensive fortifications on the Donetsk ridge. On September 5, Soviet troops occupied Horlivka, on September 8 – Staline (modern Donetsk), and on September 10 – Mariupol [18; 4].

Thus, the decisive role in the breakthrough of the “Mius Front” was played by the decision of the Soviet command to combine a frontal attack on the line of German fortifications with the creation of a threat of bypassing them from the north, from the Kharkov direction. This forced the enemy to withdraw part of its forces to the north and ensured the success of the offensive operation of the Soviet troops.

**Operation Badr, October 6-8, 1973.** Operation Badr, conducted by the Egyptian Armed Forces at the initial stage of the Yom Kippur War, can rightly be considered an exemplary example of a breakthrough in defense in depth in the history of military art. During its implementation, the Egyptian troops managed to force the Suez Canal, break through the defensive line of the Israeli AO on its eastern bank, and occupy part of the Sinai Peninsula (Fig. 4).

The defensive line of the Israeli AO – the Bar Lev line – was built along the Suez Canal. Its length is 160 km, and the depth of defense is up to 40 km. The line consisted of three echelons. In the first: a system for dumping flammable crude oil into the canal; a sand bank 25 m high; the first defensive line of 35 VOPs surrounded by a perimeter of 15 rows of barbed wire and a

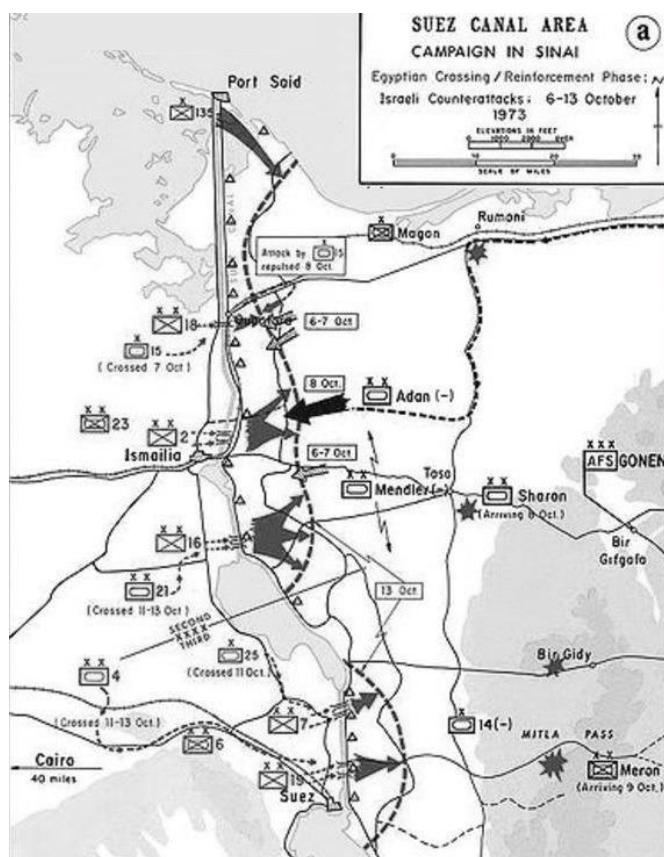


Fig. 4. Scheme of the parties' actions in the military campaign on the Sinai Peninsula (October 6-13, 1973)

minefield 200 m deep; firing positions for tanks. In the second echelon: the second defensive line of 11 VOPs 3 km to the east; 20 positions for artillery and air defense; a tank brigade; supply bases. In the third: an operational reserve of two tank brigades and ten rifle companies. The maneuver of the troops of the defense group was ensured by a system of rolling roads and communication lines. The Israeli AO group on the Bar Lev line consisted of 18,000 personnel, 300 tanks, and 70 guns [1; 6].

The Egyptians began planning the operation in January 1972, and final preparations were completed at the end of September 1973. The offensive plan consisted of two stages: forcing the Suez Canal and liberating the Sinai Peninsula. The first stage was divided into three phases. The main role in the offensive operation in the first stage was assigned to the engineering units of the Egyptian Armed Forces, which were assigned six tasks: to open passages through the Israeli sand barrier; to build crossings for tanks; to build crossings for light equipment; to build pontoon crossings for infantry; to ensure the functioning of ferry crossings; to deploy 750

light motor boats for the first wave of landings [1].

During the first phase, engineering units were to make passages in the sandbank. For this purpose, 450 water cannons were prepared, capable of washing a passage 7 m wide in the barrier in 2 hours. At the same time, the landing operation was to begin. The first wave of the landing consisted of infantry units, saturated with anti-tank weapons and MANPADS, and was intended to seize a bridgehead on the eastern bank of the canal and ensure the work of engineering units on the construction of crossings for the main group of troops. To mislead the Israelis, it was planned to land the first wave of landings and wash passages in the sand barrier along the entire length of the canal in order to hide the crossing points of the main landing group.

In the second phase, the Egyptians planned to cross the main forces and launch an offensive eastward in several directions. The main Egyptian forces consisted of five infantry divisions, each of which was reinforced by a tank brigade, a special forces battalion, and an anti-tank artillery battalion. The main forces were planned to cross in three places – in the area of Al-Qantara, Ismailia, and Suez [6].

In the third phase, the main Egyptian forces were to overcome the first line of Israeli defense and advance eastward to a depth of 15 km, remaining within the coverage of stationary air defense installations located on the western bank of the canal [5].

The offensive operation was scheduled to begin on October 6. On that day, the Jews celebrated the important religious holiday of Yom Kippur. For this reason, the Israeli government did not dare to mobilize, having no direct indisputable evidence of the invasion of the Egyptians and Syrians, and Israeli intelligence was unable to provide it [1; 5]. In addition, it was considered unlikely that the Muslims could begin military operations during Ramadan (September 28 – October 26, 1973). In order to ensure the safety of the operation, the Egyptian troops received

combat orders only six hours before the start of the offensive. On the night of October 5-6, Egyptian divers blocked the Israeli crude oil discharge system into the canal with cement [1; 5].

*First phase* began on October 6 at 2:00 p.m. – the Egyptians conducted a short-term massive artillery training on minefields and wire barriers of the sandbank and the Bar-Lev line (up to 2,000 guns were used, the intensity of fire reached 175 rounds per second); fire strikes were carried out along the entire length of the defensive line; 250 Egyptian aircraft carried out air strikes on Israeli airfields (440 aircraft in the Israeli Air Force), command posts, and positions of air defense and electronic warfare units.

At 14.05-14.20 – the first wave of the Egyptian landing: 8 thousand special forces crossed the canal in rubber motor boats and took up positions on the Bar-Leva line, intended for Israeli tanks; Egyptian units were saturated with additional anti-tank and anti-aircraft weapons to repel attacks by Israeli tanks and aircraft.

At 2:45 p.m. – the second wave of Egyptian landings: infantry units began an assault on the Bar-Leva line.

At 3:00 p.m., Egyptian engineering units began clearing passages for armored vehicles in the sandbank – within a few hours, 60 passages were created in three directions of the main attack. Israeli tank counterattacks were unsuccessful.

*In the second phase*, from 16:00 – the Egyptians began to establish crossings (including false ones) through the Suez Canal. From 20:30 the first crossings for heavy equipment began to operate.

In the third phase, from 01:00, October 7, the construction of all crossings was completed, and the movement of heavy equipment began. The Egyptians forced the canal in waves with an interval of 15 minutes. A total of 12 waves of landings were landed: the first 8 included exclusively infantry, and in the 9th-12th there was already equipment. A total of 10 crossings were built for the heavy equipment of five Egyptian divisions, and 50 landing points for ferries were prepared. Additionally, the transfer of infantry was carried out by helicopters. Air cover for the actions of the Egyptian troops on the coast of the Suez Canal was carried out by stationary air defense complexes, in the depths of the canal captured on the eastern bank at the expense of MANPADS and SAMs. By the middle of the second phase, the Egyptians had landed 32 thousand on the eastern bank of the Suez Canal. personnel, during the third phase, 780 Egyptian tanks and 300 units of other equipment crossed the canal. On the morning of October 7, five Egyptian bridgeheads on the eastern bank of the canal were up to 9 km deep, and Israeli troops were retreating from the Bar-Lev line after losing almost 200 tanks in counterattacks. On October 8, all 5 bridgeheads were combined into one – already 15 km deep, and the Egyptian group on the Sinai Peninsula was increased to 90 thousand personnel and 980 tanks. On the eastern bank of the canal, the Egyptians deployed stationary air defense systems [5].

Thus, during Operation Badr, Egyptian troops managed to cross the Suez Canal in 10 hours (Israeli intelligence believed that it would take them at least 50 hours to do this), take the Israeli defense line, and create a single bridgehead 15 km deep on the Sinai Peninsula [5].

The Egyptian Armed Forces were able to achieve success in Operation Badr due to a number of factors:

- ensuring the security of the operation – developing plans in strict secrecy, and the covert concentration of troops took place under the pretext of conducting regular annual exercises;

- the suddenness of the offensive operation – it fell on Saturday, October 6, when the Jews celebrated “Doomsday”, in connection with which many Israeli servicemen were on leave, which affected the combat readiness of the AO Israel units in the canal area; the Israeli authorities did not dare to bring the troops into combat readiness and begin mobilization on the eve of the holiday; Israeli intelligence provided information about the enemy’s plans late; the Israelis considered it unlikely that the Muslims would begin hostilities during Ramadan;

- carefully planned and clearly coordinated crossing of the Suez Canal – the crossing of troops was carried out at a rapid pace and in accordance with the schedule; the first waves of the

landing were crossed in a large number of small motor boats, which made it possible to provide the bridgehead necessary for the crossings;

the effective use by the Egyptians of infantry and special forces units, equipped with portable anti-tank and anti-aircraft weapons, which were able to ambush Israeli reserves;

Massive artillery fire created passages in the minefields for the first wave of landings;

the actions of the Egyptian troops along the entire defense line did not allow the Israelis to determine the directions of the main attack;

effective performance of tasks by units of the engineering troops of the Egyptian Armed Forces – erosion of the sandbank with fire hoses, speed of construction and repair of crossings, demining;

Israeli aviation was unable to use its air superiority due to the high concentration of Egyptian air defense assets of various types.

## Conclusions

The above operations are united by common features:

achieving strategic surprise, misleading the enemy regarding the timing of the start of the offensive (war) and the directions of the main strikes;

hidden concentration of forces and resources in the directions of the main strikes;

the use of new tactical methods and techniques when breaking through the enemy's deep-echelon defense:

the creation by the Germans of tank and mechanized infantry groups and engineering units to ensure a high level of mobility and rapid advance deep into enemy territory (Maginot Line);

Covering the offensive ground groups of the Egyptian army with modern Soviet mobile short-range air defense systems and the massive use of MANPADS, which neutralized the advantage of Israeli aviation. Massive saturation of the Egyptian infantry units of the first echelon with anti-tank weapons (1 ATGM “Malyutka” and 1 RPG in the detachment).

Features of approaches to breaking through deep-echelon enemy defensive positions:

a breakthrough due to an unexpected maneuver with innovative approaches to the use of tank formations and the conduct of landing operations deep behind enemy lines (1940);

a breakthrough by creating a significant numerical advantage in artillery, infantry, tank troops and aviation, carrying out a detour maneuver to divert enemy forces to another direction of combat operations (1943);

breakthrough by using weather conditions to eliminate the enemy's air superiority and unexpected choice of the location of the main strike (1944);

breakthrough due to pioneering engineering solutions, the use of anti-aircraft and anti-tank weapons, and a high level of troop interaction (1973).

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