

THE SIX RULES OF BREAKING AIR DEFENSE TESTED IN THE MIDDLE EAST

ARTSRUN HOVHANNISYAN

Key words: *Middle East, Cold War, Syria, Iraq, Army, War, AV, AD.*

After the Cold War, certain processes were still going on by inertia, including clashes of military systems. In particular, these models manifested themselves in Yugoslavia in 1999 and Iraq in 2003. Subsequently, these new military-science realities and technical solutions were found in conventional as well as non-conventional conflicts. The model of American air supremacy in the long-running Syrian war, as well as other conflicts, has clearly demonstrated its vitality. Here, let us attempt to clearly present what rules are in question with respect to this model.

American military systems recorded victories in both places, increasing the share of air strikes, further attaching great significance to high-precision weapons which continued to acquire increased importance in the US arsenal.¹ In the same wars digital and automatic control and communication systems were also rapidly developing, thus becoming crucial for the success of the whole event. The Army's former Movement Tracing System (MTC), which was used in Iraq, was an interesting model of network-centric operation, which in many aspects enabled command and control to get the whole picture of the theatre including down to the level of tank crews.

Theater Battle Management Core Systems (TBMCS) was one of the systems providing unordinary levels of operations and was already in use to plan, manage and control operations of the Air Forces on the theater. It enabled all aerial vehicles (AV) to collaborate in one network. An interesting system on brigade level command and control

¹ Gordon 2006: 8.

was Force XXI Battle Command Brigade or below (FBCB2) system which allowed to include and efficiently control land troops from brigade down to company level. There was a full intelligence view of the whole theatre level, both friendly and enemy troops.²

The next step was to put all that as well as information on maritime theater together, which was also done. At first, almost all types of arms or commands had their separate networks, wherewith they more efficiently controlled planning, decision making, strikes, supplies etc. of combat operations. The theory of network-centric war appeared, owing to the idea of putting together these local networks. It is still not finalized.

The basis of this system of course, is to attach importance to information, and the factor of awareness. All new generation types of weapons, in addition to their physical characteristic improvements, firstly are created with the capability to operate in the domain and conditions of prevailing in information flows. This means that large quantities of well designed, necessary and tailored information have to be exchanged between everyone and everything. The US military is now capable of creating such networks of any theater on the planet where their troops are deployed, but they still do not cover the entire planet in a unified fashion. Such information and C2 network will be created by 2030, and will also involve allies. They will all have, in three dimensions up to the space, both open and closed channels of detection, transfer, coordination, command and control and other elements. The main phases of this process, the ways and methods of acquisition are contained in the "Joint Vision 2020" doctrinal document on basis of which relevant documents and regulations are being developed today in the US.

Today this kind of qualified management core systems are effective with the dense employment of air attack measures. These are multifunctional fighters, various high accuracy techniques, and maximum-strike and precision-strike UAVs.

² Cebrowski 2005: 44.

In military operations, first strikes, which are generally massive and becoming more decisive, are not currently being executed primarily by aircraft with pilots, which is a very important phenomenon, and it is likely to increase in the future. Presently, unmanned air attacks are precisely the best evidence for that. Today, there are already UAVs that are discharged from fighter aircraft that are in use. In 2003, while the first and primary blows were being delivered by a large number of cruise missiles, there were periods of military operations when over a thousand cruise missiles were used simultaneously³. All of this also definitively eliminated the demarcating concepts of tactical, operative and strategic tasks that had been famous since the 1950s. Small tactical groups of fighters were delivering blows to strategic points, and large bombers were freely releasing bombs at tactical depths. All such boundaries were simply disappearing.

For all intents and purposes, by these measures, the prominent role of first fire-strikes in war were affirmed. The role of precision strike methods grew so much that it became a necessity to change warfare as we know it. Specifically, whereas in 1991 the allies were delivering 2 to 3 hours of continuous aircraft missile strikes daily, in 1999-2003, during similar operations, there were being delivered up to 7 hours of continuous strikes thanks to improvements of ongoing supervision and other capabilities, and with which essentially entire operations were being accomplished. That is, these were electro-fire aircraft missile strikes, which, along with electro-network supervision, form the foundation of these military operations.

Here appears a new kind of battle, that of the electro-fire. Electro-fire battle means not only the electronization of the function of the electronic attack that accompanies strikes, but also that of the strike's pointing, control, management of verification, and the striking means itself. As a rule, the means of the fundamental strike will have electronic components, even if it may be merely in its internal circuit. Whether the strike means be cruise missiles, cluster

³ "Washington Post", 28 march 2003: 1.

bombs or a multi-precision shell, it must undoubtedly work jointly with open and closed electronic systems in order to reach its target. Its very release, pinpointing the target, guiding and controlling it, etc. are all electronic-based. And future weaponry will be even more electronic-based. Electromagnetic cannons, laser cannons, and even future soldiers' rifles are all to be electronic-based in every way, from their scopes to their owner-recognition features. Prior combined battles of equal magnitude implied that the coordinated activities of all kinds of weaponry was for a single common goal. Today this is replaced by electro-fire battle which is worthy of replacing the prior battle precisely because electro-fire means form not only the capability of all the services to work separately, but also that of the ability to work together.

All these abovementioned innovations come to prove that the American air assets, adhering to certain rules, are obviously able to break the air defense system of Soviet model, and having established air supremacy, can continually achieve victories. These rules can be divided into six requirements. They are as follows:

1. Air grouping initially should be composed of approximately 50-60% of strike aerial vehicles (AV), 40-50% of special supporting AVs. These include primarily reconnaissance, air C2 and EW AVs.

2. During the first strikes, as long as air supremacy is not completely ensured, the density of strikes from air assets has to be at least 1.5-2 times more than target engagement channels of enemy AD. Soviet strategists first were trying to fight against this by increasing the number of AD assets, later by increasing the quantity of target engagement channels. Today they are also fighting by enhancing their automated control centers. However, managing increased amount of anti-air capabilities is an easier task for the attacker. Nowadays various widely used UAVs, false targets and other air assets are considered to be solutions to that very problem.

3. The initial strikes have to be electronic-fire, in a ratio of one to two or one to one, which means one EW aerial vehicle, falls to 1-2 strike aerial vehicles' lot. No matter what common EW pressure

will superior's means provide, which the subordinate could also make use of, this ratio is necessary at the beginning of strikes. The strike asset that has its own powerful EW means can be considered a suppressive asset, but as a rule they are few. Division of common strike AVs into groups and tactical flexibility greatly depend on these requirements. Here the situation is comparable to the enemy's fighter aircraft as well. And in general these rules are also greatly applicable in fighting enemy air power. Given such a situation, strike groups can be divided into sub-groups and pairs. But basically one should always take into consideration that each strike group or separate objective must be provided with an appropriate level of EW assets. American air forces usually launch first strikes using up to 300-400 aerial vehicles, apart from cruise missiles and UAVs. This quantity is mostly split into 8-10 aircraft, but can even be split into pairs. But this is not dogmatic and is dictated by the situation, assistance from a superior, by quantity of available resources, etc.

4. Preliminary strikes if not completely, then predominantly, must be conducted by high precision assets. The strikes in this phase are preferable to be conducted more by cruise missiles and long-range UAVs. In recent years, the total share of such strikes get close to 80 percent. Even unguided rockets launched from helicopters are being transformed into guided missiles.

5. As long as the enemy's AD is not destroyed, 70-80 percent of sorties must be dedicated to that purpose. This constitutes the first phase of strikes. In subsequent phases it's necessary to permanently allocate capabilities to that aim, and not only with the help of combat sorties. Destruction is a relative concept. It is necessary that the ground SAM systems and fighter jets lose most of their combat capabilities and do not have capacity for organized and dynamic resistance. Even under conditions of full air supremacy, about 10 percent of sorties are carried out towards achieving this end. To destroy area AD, other air attack assets are actively used, in particular tactical and operational high precision ballistic missiles.

6. Most of the strikes of all phases must be directed to the mobile targets, as properly protected enemy usually disguise their

objectives well and then, after the first strikes, they immediately remove them from under the strikes and quickly maneuver. Although in 1991, 1999, 2001-2003 American air forces executed brilliant strikes, the command was constantly complaining that strikes directed to mobile targets were not of sufficient level yet. But American air strikes conducted in 2014 August-October against the targets of ISIL were simply stunning. Even mobile targets moving at a speed of 80-100km/h were hit. Incidentally, here for the first time the US also used their new generation fighter jet F-22.

It's possible to break any mighty air defense if those six rules are followed. The newest air defense equipment is being developed nowadays, but even they can be surmounted following the above-mentioned rules. For these rules, people keep creating even new micro UAVs.

A classically entrenched enemy can be defeated when the first three requirements are met, whereas to inflict defeat to the modern enemy forces it's especially necessary to ensure that the fourth requirement is met. Without the fourth and last requirements, it was possible to break any Cold War time AD of the Soviet model. However, today's AD built by modernized systems and based on this model can be broken only when particularly those two requirements are emphasized.

Today the American military and engineering mind is busy developing these factors. Various types of drones and strike assets are being manufactured; even guided bullets are trying to be made. The theater of war is moving toward being more controlled and watchful; every soldier must be visible for a commander on the respective screen.

Today the American military-economic and engineering mind is busy with the development of especially these factors. Various types of drones and strike assets are being manufactured; even bullets are trying to be made guided, and the theater of war - controlled and watchful. Every soldier must be visible for a commander on the respective screen. Already no one is surprised

nowadays at UAVs having the size of a fighting aircraft,⁴ nor at hand-held reconnaissance UAVs. After C4 I and C4 ISR control systems the American military put into operation⁵.

Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance and Reconnaissance (C5 ISR) and installing its components on all assets creates a network-centric system of command and control. American experts believe that such a system will not only allow implementing the concept of horizontal and vertical integration, but also increasing the accuracy of destruction, and its control and so on.⁶ Component part or combat strike part (considered as combined) of the reconnaissance-strike complex will be high precision destruction assets (e.g. bombs, missiles, electromagnetic cannons and etc.). In this context, another theory which is a complementary component of the "network-centric warfare" is becoming essential. It's called "Prompt Global Strike" (PGS). The idea is that thanks to new types of air attacking assets (AAS) the American Armed Forces is able to deliver strikes to any spot in the world within a maximum of one hour. Currently, anywhere in the world, the necessary amount of AAS can be assembled to ensure supremacy for the US Armed Forces within 48 hours at best.

According to the "Prompt Global Strike (PGS)" project, in fact, within the theater of war and even outside of it, there must not be any undetected targets; and in case of their identification, they are immediately neutralized. The challenge is immediately resolved. Additional consideration is not needed. For target detection and destruction multiple complementary means are used. That is, if you can see it, you can destroy it. In other words, the formula is as follows: In case of availability of an all-seeing network, the moving objects are struck. They have, at best, just a slight chance of salvation if they stay put and do not move.

Let us now turn to aircraft carriers that serve as maritime platforms. They differ in this case from the AA in terms of disadvan-

⁴ Koch 2004: 8.

⁵ Arzumanyan 2011: 260.

⁶ Kondratiev 2009: 47.

tages only on speed of operations, but in terms of advantages they are more flexible and multi-functional. However, they can be AA carriers. The modern fighters placed on an aircraft carrier can operate hundreds of miles away from each other, but work closely with each other and with other AAs and with maritime platforms: simply stated, a fighter can perform reconnaissance for a warship, launch missiles for it, a UAV belonging to land forces can be used for air forces, a fighter can send data to any SAM and all can do vice versa as well.

The new generation of aircraft carriers will already have capabilities to operate concurrently on two continents.

Large-scale combat operations carried out on full-scale operational and strategic theaters will still have active involvement of classical arms and services, while air supremacy will continue to be a decisive factor.

In the Syrian war, these rules and regulations of American air supremacy apply, in effect, nearly every day. The Russian air force first operated under these rules in Syria, starting from 2015; Massive airstrikes, long-range strikes with heavy bombs, use of cruise missiles, accurate strikes, application of UAVs for air power and artillery guidance, finding solutions against small UAVs, etc. Because of its failure to secure air supremacy, the Russian air force received a heavy blow from a Turkish fighter. While having powerful fighters like the SU-30S, Russian command did not provide proper air protection, and the Turkish fighter took advantage of this and struck a Russian bomber. These are the very rules by which the Russian air force lives today.

The best example of abiding by the above rules are by the Israeli air force in Syria, as well as the American air force with its infrequent but powerful strikes. In particular, for several years now, the Israeli air force has carried out scores of powerful strikes on various targets in Syrian territory, irrespective of the target's affiliation. Syrian, and not only Syrian, air defense has launched retaliatory fire with dozens of missiles each time, yet so far the Israeli air force has lost only one fighter plane. That said, throughout the Israeli

air strikes, we have come to see that even the latest Russian anti-aircraft missiles remain powerless.

On the other hand, Russia and China today are trying to develop more new technologies to challenge American air supremacy. These efforts can primarily be separated into a few groups: active and passive detection systems; pseudo-arms; and, passive and active radio-electronic disruption. Today, Russia's Nebo-M (55Ж6МЭ), Nioby (55Ж6УМ), and Protivnik-GE (59H6-E) radar stations are widely deployed. Also, there is a Chinese model, YJ-26 which, according to some sources, has been able to locate an American F-22, a semi-stealth fighter, over Korea.

Besides location devices, the Russian military is trying to widely apply detection abilities like the Avtobaza-M and others. At the same time, other types of passive and active disruptive mechanisms like Valeriya, Pole-21, and Krasukha-2, and other systems are being tried; these come in a number of models and they can be very effective, especially in separate engagements. Nevertheless, they have a few essential faults:

- 1) They are primarily deployed on land that, in matters of air supremacy, are not that effective;
- 2) They are physically very large, which allows them to be easily found with little effort;
- 3) They are inherently defensive mechanisms that can be a benefit to an enemy who is conducting a continuous, incessant attack;

By fulfilling the abovementioned conditions, almost any aboveground AD systems or AF-AD union built on this base can be broken. The events which took place on the Syrian Al Sharia military base on April 7, 2017 is proof of the aforementioned regularity. By launching 59 missiles, the American navy provided required density together with other measures to guarantee overcoming any aboveground AD system. In fact, Syrian and particularly Russian new generation SAM and REW systems' situated in the direction of the missiles' flight could not do anything to interfere with the strikes. The reason for the Russian side not taking any steps was technical difficulties. In this case it's worth mentioning that Russia's Minister

of Defense, Sergey Shoygu, issued a statement on April 26 where he stressed that the lives of Russian soldiers were threatened due to American strikes in Syria⁷.

It is a fact that the new air supremacy model is undergoing vital trials in the East today, with its six rules, which apply regardless of the type of war.

BIBLIOGRAPHY

Arzumanyan R. 2011: Complex thinking and network. The paradigm of nonlinearity and security environment of the 21st century, Yerevan.

Cebrowski A. K. Admiral 2005: The Implementation of Network-Centric Warfare. Department of Defense, Washington, DC: Office of the Secretary of Defense.

Gordon A. 2006: Marines on the Ground. Hong Kong.

Washington Post, 28 March 2003.

Koch A. 2004: Notrop to build X-47B combat drone prototypes. Jane's defence weekly. 25 August.

Kondratiev A. 2005: The implementation of the concept of network-centric warfare in the US Air Force. 5.

<http://www.interfax.ru/russia/560064>

Artsrun Hovhannisyan - *PhD, Military analyst*
arcruhovhannisyan@gmail.com

ՕԴԱՅԻՆ ԴԻՄԱԴՐՈՒԹՅՈՒՆԸ ԿՈՏՐԵԼՈՒ ՎԵՑ ԿԱՆՈՆՆԵՐԻ ՓՈՐՁԱՐԿՈՒՄԸ ՄԵՐՁԱՎՈՐ ԱՐԵՎԵԼՔՈՒՄ

**Բանալի բառեր՝ Մերձավոր Արևելք, Սառը պատերազմ,
Սիրիա, Իրաք, բանակ, պատերազմ, ԹՍ, ՀՕՊ:**

⁷ Шойгу назвал удар США по Сирии угрозой безопасности российских военных. <http://www.interfax.ru/russia/560064>

Սառը պատերազմի ժամանակ հատկապես սրացավ ռեակտիվ օդուժի և ՀՕՊ-ի պայքարը: Տեղի ունեցան մի քանի պատերազմներ, որտեղ բախվեցին օդուժը և ՀՕՊ-ը, որի հիմքը կազմում էին ցամաքային ՁՀՀ-ները: Սակայն այդ բախումների արդյունքում ի վերջո հաղթում էր օդուժը և հաղթում էր հստակ օրինաչափությունների շնորհիվ: Այդ օրինաչափությունները այսօր էլ փորձարկվում են Իրաքում և Սիրիայում:

Հակառակորդի ՀՕՊ համակարգը չեզոքացվում է հստակ կանոնների պարագայում: Դրանք են՝

1. Օդային խմբավորումը ի սկզբանե պետք է կազմված լինի մոտավորապես 50-60 տոկոս հարվածային ԹՍ-ներից և 40-50 տոկոս ապահովող, հատուկ ԹՍ-ներից: Դրանց մեջ մտնում են նախ և առաջ հետախուզական, օդային կառավարման և հատկապես ՌԷՊ-ի ԹՍ-ները:

2. Առաջին հարվածների ժամանակ, քանի դեռ օդային գերակայությունը լիովին ապահովված չէ, հարվածող միջոցների խտությունը պետք է լինի ՀՕՊ-ի նշանակետային ուղիներից առնվազն 1,5-2 անգամ ավելի: Լրացուցիչ ԹՍ-ները իրենց երկրորդական խնդիրներով կարող են ավելի բարդացնել իրավիճակը վերգետնյա ՀՕՊ-ի համար, սակայն հենց հարվածող միջոցները՝ ԹՍ-ներով ու իրենցից արձակվող միջոցներով, պետք է լինեն այդ հարաբերակցությամբ:

3. Առաջին հարվածները պետք է լինեն էլեկտրակրակային (ՌԷՄ-ի շեշտադրված տարրերով)՝ 1-2-ի կամ 1-1-ի հարաբերակցությամբ, այսինքն՝ 1 ՌԷՀ-ի ԹՍ-ին բաժին է ընկնում 1-2 հարվածային ԹՍ: Անկախ նրանից, թե վերադաս միջոցները ՌԷՀ-ի ինչ ընդհանուր մակարդակ կապահովեն, որից նաև կարող է օգտվել ենթակա միջոցը, այս հարաբերակցությունն անհրաժեշտ է հարվածների առաջին փուլում:

4. Նախնական հարվածները եթե ոչ լիովին, ապա գերազանցապես պետք է լինեն գերճշգրիտ միջոցներով: Ցանկալի է՝ այս փուլի հարվածները ավելի շատ լինեն ԹՀ-ներով ու հեռահար անօդաչու միջոցներով:

5. Քանի դեռ հակառակորդի ՀՕՊ-ը հիմնականում ոչնչացված չէ, մարտական թռիչքների 70-80 տոկոսը պետք է կատարել հենց այդ նպատակով: Սա կազմում է հարվածների առաջին փուլը:

6. Բոլոր փուլերի հարվածների հիմնական մասը պետք է իրականացվի շարժական նշանակետերի ուղղությամբ, քանի որ լավ պատրաստված հակառակորդը նշանակետերը լավ քողարկում է, իսկ առաջին հարվածներից հետո անմիջապես դրանք հանում հարվածների տակից ու արագ խուսանավում:

Արանք հիմնական, սակայն ոչ բոլոր պայմաններն էին, որոնց պարագայում գրեթե ցանկացած մակարդակի վերգետնյա ՀՕՊ համակարգ կամ դրա հիմքով կառուցված ՌՕՈՒ-ՀՕՊ միասնություն կարող է կոտրվել: Այս և կազմակերպչական, նախապատրաստական, նյութական և այլ գործառույթների հստակ պահպանման դեպքում հնարավոր է ոչ միայն հաղթել ցանկացած ՀՕՊ-ի, այլև օդային լիարժեք գերակայության հասնել և հաղթել ռազմագործողության ժամանակ:

Փաստացի այսօր Մերձավոր Արևելքում իր կենսական փորձարկումն է անցնում նոր օդային գերակայության մոդելը իր վեց կանոններով, որոնք անկախ պատերազմի տեսակներից կիրառելի են:

**Արծրուն Հովհաննիսյան - պ.գ.թ., ռազմական
վերլուծաբան**

arcrunhovhannisyan@gmail.com