

MILITARY ART
AIR SUPREMACY
Volume 1

Summary

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During the last seventy years nearly no war was initiated on the ground. As far back as in 1921 an Italian military theorist Julio Duen, during his inquiry of finding a reasonable way out of the bloody battles of the First World War (1914-1918), worked out a sound theory. He noticed that the elimination of war borders and inclusion of all planes in military operations afford perfect opportunity for the aviation itself.

The main issue of Duen's theory was as follows: by wounding the facilities of vital importance of the adversary it is possible to have an influence over the whole government and psychology of the nation even if leaving the armed forces (AF) alone.

Nearly all wars of the last fifty years came to prove that he was right. Certainly, all these didn't occur immediately, Duen just foresaw, gave an idea. Today, this important role is undertaken by general *Flying vehicles* (FV) or *Means of air attack* (MAA), the part of which forms the aviation. We've integrated the FVs with MAA; for the history of their usage proved that there isn't a FV that could not be used as a firing or other striking MAA. Moreover, the military has used nearly all fighting potential of FVs.

Certainly, the air-force has already been used for a century in the military sphere and it is natural that for the same period the *Anti-aircraft defence* (AAD) is used as a main enemy of the air-force. But the increase of the role of these two arms of the service took place especially after the Second World War (1939-1945), as it was the best reactive age for the development of MAA. After the Second World War the next war, where the sides were more or less equal, and struggles developed close to the classic military rules, was the Korean War which started in 1950. In this war the application of the air-forces was special first for the fact that already a great amount of aircrafts with reactive engine and especially the stars of the war "МиГ-15" and "F-86" fighters with reactive arrow wings were used. The second peculiarity was that the increased volume of the usage of FVs.

The air-force of the Allies performed nearly 1200-1600 flights daily. Only the naval aviation daily performed 1200 flights at first, after the war it daily performed already 300 flights. It's not difficult to understand that for the Korean Peninsula it meant 10 aircrafts on each kilometer. For the Northern Korea and its Allies this meant bombardment of unprecedented density and power. Already all the fighters and other reactive aircrafts with their qualities were an advance over the aircrafts of Korean sky.

A classic air war took place in 1967 between Israel and Arabic world: the so called "Six days' war". The main means of fighting against the aviation of the enemy were still considered fighters. We point out this war first then the next because of the fact that it

was early ended and it was the first classic war in the Near East, where though the land rocket component of AAD appeared, it remained imperceptible.

Israel AAD forces operated as a separated arm of the service until 1965. The same year the Israeli AF receiving the American anti-aircraft missile complexes (AAMC) "HAWK" switched to the arm of the service of the American structure. That is to say the troops of AAD submitted to the Air-force powers (AFP). In spite of the fact that the Arabian countries excelled Israel twice in quantity of military techniques, they sustained a defeat. Early in the morning of 5th June the Israeli aviation impetuously struck back first against Egyptian, then Syrian, Jordanian and Iraqi Mosul's airports. The strikes were so precise and unexpected that the Arabian aviation was nearly at once annihilated mainly on the ground. Primary strikes were against "Tu-16" and "Il-28" bombers of Soviet production, as they were powerful machines and represented danger for Israel.

During the Six days' war the Israeli aviation performed 3279 military flights, destroyed 469 Arabian airplanes, 60 of which in the air, 3 airplanes were destroyed by the Israeli Anti-aircraft artillery (AAA). The Israeli losses were 46-48 airplanes from which 15-18 in air fighting, i.e. 1,2-1,7%. In an absolute number Israel had certainly lost the 20% of the airplanes it had, but had done damage to the adversary of 90-95%.

The second war during which the implementation of means of air attack reached to unprecedented volumes was the Vietnam War. In this war the American side widely used various MAA and FVs, from which the helicopters were especially striking. This war was sometimes called a Helicopter War. During the war these FVs had performed the main part of the general flights of aviation. And it's not yet all; these FVs as compared with airplanes have had better viability. In this war the helicopters were damaged only after performing 18000 flights (0,005% of loss).

For the first time in the Vietnam War there also took place the antagonism between AAMC and MAA, which was a new thing in its kind. The antagonism between Soviet anti-aircraft systems and American airplanes played an important role in this war. Nevertheless, in this antagonism the victorious became MAA, which by causing great losses suffered very little. According to the Soviet data the Soviet Union provided the Vietnam Democratic Republic with 95 "C-75, SA-2 Guideline" AAMC and 7568 rockets for those complexes. From those rockets 6806 were launched to injure the American FVs, from which 1293 American airplanes were crashed. It's not difficult to count that for each crashed airplane 4-6 rockets were spent on average. There are specific cases which present more sorrowful picture.

On December 18th, 1972, Americans began "Linebacker II" military operations, during which the American aviation performed more than 2814 military flights. During the military operations an important role played "B-52" heavy bombers as well, which were flying from the Guam island of Pacific Ocean and reached Vietnam being re-charged just in the air. These giants, which carried more than 25 tons of bombs, had also losses of 15 airplanes. Of course the loss of 15 bombers was not small one, but it formed only

the 2% of flights of such airplanes. The same day, 6 out of these 15 airplanes were put out of action, i.e. on the 20th of December when there were very furious fights. However for crashing those 6 airplanes 220 anti-aircraft rockets were launched. That is to say the efficiency formed 36, 6 rockets for one crashed aircraft. After six days 68 rockets were again launched on a great amount of bombers (take into consideration that fact as large group targets were destroyed easily) and were crashed only 2 "Stratofortress". So the result is nearly the same: 34 rockets for one crashed aircraft. And that is not all. According to some data sometimes for crashing an aircraft, the rockets' expenses reached to 64 as a result of Radio-electronic struggle (RES). As to how much damage about 750 flights of those bombers caused in 11 days becomes clear from the numbers: 85 000 launched bombs with 20 000 tons of total weight. These were bombings of an unprecedented scale and sometimes it is called "11 days' war". Don't forget as well that as a result of American bombings also AAMC was damaged; from those 95 mentioned, which the Soviet Union provided at the end of war, only 39 were left.

So from war to war the role of MAA was increasing. And in all these was clearly outlined the Western, now American, model of air supremacy to which the Soviet military machine tried to oppose the strong land AAD. The tendency which started from the Vietnam War found its continuation in several Near Eastern wars, in which the USA and the Soviet Union one way or another played direct or indirect role.

Approximately parallel with the Vietnam War itself just the usual Arab-Israeli war was waged, this is used to be called "War of Exhaustion", which started just a month later after the Six days' War. In this war Israelis received some American assistance as well.

Not standing the Israeli blows Egypt resorted again to the help of the Soviet Union which this time gave a helping hand not in numerous techniques and limited number of advisers but by the mission of rather great army and titanic armaments. This time the Soviet Union was directly drawn into the war. The Soviet troops analysing the reasons of Arabs' failures and realizing that to Israeli's success particularly contributed the AFP, passed a "brilliant" resolution: to lay accent on different AAMC and other forces of AAD in sending troops and arms to Egypt.

In January of 1970, the supreme commanders of the Soviet Union arrived at Egypt to get acquainted with the situation in the act, 75 Soviet "МиГ-21МЕ" fighters with 150-200 pilots of high-quality were brought as well, in March a new large army was sent with 21 divisions AAMC and other military techniques. All in all, together with the existing ones it formed about 35.000 Soviet soldiers with several generals, huge techniques and armaments. With Soviet means and soldiers the 18th special division of AAD was formed, the commander of which was A. G. Smirnov, the 135th destructive aircraft regiment and 35th destructive separate squadron. From Cairo to Suez there were placed more than 600 release stations of AAMC and about thousand cannons of AAA.

Hereabouts the Suez Canal the powerful, impracticable dyke of AAD arranged by these division's efforts was compared only with AAD of Moscow. Well safeguarded were

also Cairo, Alexandria and Aswan. Till the 30th of July the skirmishes were seldom, but the zenith of fights was just that day when 24 Soviet fighters with experienced Soviet pilots rushed to the attack with 16 Israeli fighters (4 "F-4 Phantom II" and 12 "Mirage 3"). The fight ended with 5 Soviet fighters' crashing with no loss from the Israeli side. The next day marshal P. Kutaghov, the Commander of the Soviet AFP arrived at Egypt and calling the event "disgrace" prohibited all flights.

Till the August of 1970 the Israeli Airforce Powers surmounted oversaturated dyke arranged by the Soviet specialists with great difficulties, though the fight of 18th July caused great losses to the Soviet side.

On 1st August near Ismailia the Soviet specialists had built a safe dyke of AAD. Everything was equipped perfectly, no demand was ignored. The first two days Israelis were reconnoitring and planning their deeds. The third day blows fell thick and fast, to stand which was rather difficult, it is true that the Israeli aviation also suffered some losses but the caused damages were rather large.

As a result of "the War of Exhaustion" the Israeli fighters in the air damaged 113, the AAMC 25 Egyptian, Syrian and Soviet aircrafts, some of which were with Soviet crews. The Soviet side together with Egyptians succeeded in damaging in the air 4 aircrafts by fighters and 13 by AAMC with the help of numerous complexes and at the risk of lives. Moreover only from all kinds of the Soviet AAMCs numerous rockets were launched. The fighters of the air war were the same: French "Mirage-3", American "F-4 Phantom II" and Soviet "МиГ-21". But even with the best versions of fighters the best Soviet pilots sustained defeats as usual.

On 6 October of 1973 Israel confronted again with the Arab world in the war having no end. In "The Day of Judgement" war also many things repeated the Vietnam scenario. The opponents were armed with nearly the same American and Soviet arms and pursued nearly the same strategy. In the antagonism of the Air forces ─ AAD, certainly, already some new arms were added, particularly the new Soviet "C-125, SA-3 Goa" AAMC, which as compared with the "C-75, SA-2 Guideline" could injure low-flying targets as well. These complexes started from 1970 were used in Egypt, moreover near the strong dyke of Suez Canal there were 18 divisions /battalions/ of these complexes. Another moveable "Kub, SA-6 Gainful" complex promised well to Soviet specialists; it could damage low flying aircrafts as well and besides with some of its technical features it surpassed the previous two Soviet complexes. This Complex is still considered by some Russian specialists to be the most effective in that war. The first Soviet "Strela -2, SA-7 Grail" hand AAMC was also a Soviet innovation which Egypt began to make use of in July, 1968. Israeli Airforce powers widely used the American anti-radar set rockets, unmanned flying vehicles (UFV), other means of RES and other electronic systems of fight control.

The fighters of both sides were the same but as compared with Vietnam there was a significant difference in the aviation: the opponents of Israelis had also MAA, which excelled Israelis in number like the previous time. Only the Egyptian AFP had more than

400 fighting aircrafts, 500 fighting aircrafts had Syrian AFP not counting fighting helicopters and a dozen of aircrafts provided by other Arabic countries. The Israeli AFPs were armed by 50 fighting aircrafts, 81 helicopters and 10 "HAWK" AAMC.

Preparing for the "Day of Judgement" war, taking into consideration the bitter attempt of the previous wars, Arabs were again armed with a great amount of Soviet modern AAMC. The Egyptian and Syrian sides together had more than 180 AAMC with about thousand simultaneously launched stations. Syria alone had 38 divisions of AAD not counting nearly two thousand hand AAMC, means of AAA and more than 400 fighters. All these together formed an immense power.

The first strike was sudden for Israel, but the failure didn't last long. During the military operations the Israeli AFP powers had more than 11000 fighting flights; the Arabic forces had nearly 10000 fighting flights. To understand the level of application of AFP let's stop on these data. Each of about 500 Israeli FVs made about 20-22 fighting flights. Each of 1000 Arabic FVs made about 10 fighting flights. And this was in case when Arabs didn't have the need of material security at all while Israel had serious problems with supply. After the Second World War in application of MAA there was again recorded a progress in the sphere of ballistic rockets. In this war Egypt made limited use of the Soviet "P- 11" operative-military rocket made in 1950s, which had qualities close to German "V-2 Vergeltungswaffe-2, A-4 Aggregat-4" used still in the Second World War. This rocket would find a wide application for the future wars and would transmit a new impulse for the usage of MAA of this kind.

Both sides had made use only of about 40% of their flights for the air attacks. The Israeli Air forces in the tensest days made 500 military and more unmilitary flights.

The Arabic AFPs all together had lost about 400 FVs and Israeli side nearly 150 FVs. Israel's losses formed not more than 1,5%, and Arabic losses were 4%. Here we have to particularly mark that the Israeli Air forces had recorded their main losses in the opposite territory, and Arabs in their own one, i.e. in the same territory.

In the overall of crashed FVs about 200 were damaged by AAMC (let's specially mark that these were oversaturated) and by other over ground means, all the others, that is to say more than 350 again fell to fighters' lot. So, the best MAA still remained the fighters, but when observing from other sides, it was not so. 85-90% of Israel's lost FVs fell to Arabic AAMC's and to other land means' lot and only 10% to fighters' lot. From the quantity data of armaments it was obvious that the Arab armies were armed by a huge number of the AAMC, and the Israeli side with a limited number of such arms.

That is to say a typical Soviet approach of forming AAD: for each crashed Israeli fighter 100-150 fighting flights of Arabic fighters were spent. On the contrary 90% of Arabic losses fell to Israeli fighters' lot, which made 11 flights for each Arabic crashed fighter. The index is excellent taking into consideration the state of the military techniques, the air thickness and so on.

In spite of the fact that the Arabic forces were oversaturated with the Soviet best arms and a great number of specialists anyway they suffered a defeat. One of the

reasons of Arabic defeat, from our point of view, was also the Soviet model of providing AAD of military operations. Arabs like the Soviet side having a great amount of AAD laid stress on the provision of the great density of anti-aircraft fire in the circles of the Land forces (LD). At the same time the cooperation between the fighter aviation and land components of AAD was nearly fully ignored. In spite of the fact that again according to the Soviet model the huge APPs were acting on the whole as means of securing the air territory of the country. The Arabic side again as a result of bad cooperation spent too much rockets and made too many mistakes of damaging their relative aircrafts. The number of launched Arabic rockets reached two thousand in return for about 120 Israeli wounded aircrafts. And the number of mistakenly damaged aircrafts of their own exceeded 55. It's not difficult to count that for each aircraft it was spent about 16 rockets if we consider that the AAA did no job at all. The situation with the hand AAMC had been more inefficient. During the war of 1973 6 FVs were injured by "Strela 1 2, SA7 Grail" AAMC, 3 of which definitely proved. That was in case when the number of launched rockets exceeded 4000. The Israeli AAMC damaged 13 Arabic aircrafts, and 30 aircrafts were damaged by other anti-aircraft means. About 50 of the great amount of Arabic AARCs were put out of operation as a result of air attacks.

The problem is, of course, the approach, the strategy: according to the Soviet model the "first violin" was entrusted to the LD, in this case to AARCs. According to Western (usually American) model the center of gravity was step by step rising to the sky. And in this great deal of the new model Israeli APPs played a great role.

The Israeli fighters have recorded even new acquisitions in virtue of perfect armaments and good preparations: the main part of their air victories stated by the rockets. The efficiency of middle-range rockets certainly increased. Only 60 victories were recorded by the guns, especially striking were the rockets of Israeli production.

Year after year the realization of this approach was also improved by Americans and Israelis.

During the following Arab-Israeli fight, in 1982, the situation was rather changed in Bekka plain's struggles. The Israeli APPs were armed by the latest "F-15", "F-16" fighters of the fourth generation, "E-2C Hawkeye" aircrafts of distant revealing and fight management, which were widely used as far back as in the Vietnam War and were new phenomena in the arrangement of air attacks. The important role of UFVs and RES (existed in both sides and were widely used by the Israelis) raised. The Syrian AAD forces more increased in number. They already include 128 divisions of some of the Soviet latest models of AAMC not counting the new Soviet "МиГ-23" fighters, which as compared with the Soviet previous fighters, were considerably independent and irrespective in air attacks and were armed by "air-air" class rockets of middle range. The Syrians were again actively supported by a great number of Soviet specialists.

On 6th June of 1982 the Israeli AFs focusing on the air forces invaded the Lebanon territory and persistently developed the attack in three directions. The next day only the Syrian AFs started to make resistance, particularly the AAD subdivisions and fighters

became rather active. On 9th June the greatest and the first air attack of the fourth generation after the Second World War took place, in which 60 fighters were used from the Syrian side and 90 from the Israelis. That day Syrian losses were great. Some of the AAMC were already out of order and the next day, on 10th June there took place a larger air attack where the Syrian fighters remained nearly without the support of AAMC. That day 350 aircrafts were fighting in the air, the Syrian helicopters tried to stop the Israeli tank columns by the antitank rockets and, we may say, they did great damages to them. But in the evening it became clear that they had lost more than 28 FVs. The active fighting operations were ceased on 11th June. At that time the Israeli aircrafts had nearly 2000 fighting flights, not less flights had done all kinds of helicopters.

The Arabic AARCs managed to put out of order only 5-10 Israeli aircrafts, helicopters and UFVs. There were recorded some hundreds of rocket launches, not counting nearly 1000 rockets launched by hand AARCs and AAA. As for the Syrian fighters it goes without saying: 1-3 possible victories not proved up to now.

The Israeli AARCs and other LD had put out of order about 5-10 Arabic aircrafts and helicopters.

The fighting operations were ended by the obvious defeat of the Syrian side. The Israeli AFP did great damage to the Syrian AFP and AAD by causing slight losses in the air from the AAD. Only on 9th June 14 AAMC were destroyed and 3 damaged in two hours, in few days 80-85 aircrafts were injured in the air. In the following days the destruction of AAMC was in progress. In the first place to be damaged were the Radio position finding stations (RPFS) of AAMC.

Discussing the reasons the specialist again came to the conclusion that the Syrian AAD subdivisions couldn't even secure normal communication with each other, and there was almost no communication as such between the AFP and AAD. In the Bekka plain the Israeli side with the help of UFVs, false targets, AAMC and means of RES and by the close cooperation with the shock aviation deafened or destroyed the RPFSs, AAMC and FVs. There were widely used Anti-radio localization rockets, which in case of disconnection of its main source, i.e. RPFSs the UFVs tracked other kinds of anti-radio localization aircrafts by laser light. The whole information about the air situation was obtained and clearly controlled by the American distant detecting and leading "E2C Hawkeye" aircrafts. Important roles played aircrafts of RES and "Boeing-707" reconnaissance aircraft. In fact, for the first time there was used the reconnaissance-shock military operation. That is to say the success was secured by the high technical saturation, cooperation and organization.

The striking was that the Soviet specialists having such an independent and long range fighter like "МиГ-23" didn't try to entrust the "first violin" to it.

We will add to the analysis that in this war as compared with the previous ones each fighter had twice or thrice more chances to see the opponent and destroy it in the air. The air attacks of the fighters of the fourth generation showed that the American side learnt lesson from the Vietnam War. In fighters of the new generation already the

short-range and long-range fighters were put nearly side by side which meant that the old features didn't disappear but more perfected themselves. The American fighters had good maneuvers, at the same time good carrying capacity and long-range bases. They were armed by perfect guns, small and mean tested long-range aircrafts and good radio-electronic devices. The "F-15" fighter was rather independent, with the help of its RPFS it could notice its opponents from a great distance and rush to the attack with them. It was mainly free from the blemish of being strictly connected with the land complexes. And in spite of this it was efficiently used with the "E-2C" air fights managing aircraft. That is to say, the American fighters were endowed with all the best features of the fighters used in the Vietnam War and developed them.

But the Soviet side, as turned out, didn't learn a good lesson from the same war, according to the drawn conclusions they took the features of the American fighters forgetting about their own. The example of this was "МиГ-23" which not so much distinctly repeated the features of the "F-4 Phantom II" but refused the past achievements. That is to say the fighter was deprived of the chance of air fighting with good maneuvers, which had the previous one. In fact together with "МиГ-23" they were obliged to make also the best variant of "МиГ-21", i.e. the "bis", which long remained among armaments filling the defects of the new fighter. As for Americans they learnt a good lesson and by leaving their advantages they added the Soviet features to their fighters. The average efficiency of the American fighters was 5-8 fights for each damaged Syrian aircraft, and during the same flight other problems were solved as well. The experience of the air attacks showed that the fighter aviation with rocket armaments found its certain place. The prevailing part of the crashed aircrafts is again realized by the fighters.

90-93% of air victories were gained by the rockets in middle and long-range and only 7-10% was realized by the guns. It was the victory of American and Israeli rocket technique ("AIM-9 Sidewinder", "Python-3") for which effort was exerted and much time spent.

In 1982 nearly at the same period military operations were proceeding between Great Britain and Argentina. Long ago Falkland (Melvin) isles of the Atlantic Ocean were apple of discord between these two countries. During this short war, certainly the Englishmen used MAA more actively but the Argentinian AFP also expressed perfect organizing capabilities. On 4th May Argentinians with their new French "Super Etandard" aircrafts couple and anti-vessel "Exocet AM38" rockets, from which they had only three, unexpectedly struck the English vessels. The strike was surprisingly efficient, the English newest "Sheffield" torpedo-boat was wrecked and the "HMS Plymouth" was fortunately saved. These aircrafts were very active with their crew; the main targets of Argentinian pilots were the English aircraft carriers. It was natural, because these were "Harrier" airports of their main enemies. On 25th May during the usual flights the "Super Etandard" tried to wreck the English "Hermes" aircraft carrier. The pilots attacked

skillfully but owing to English clever operations the rockets damaged a service transport ship.

During the war the both sides actively used MAA and other FVs, besides it should be noted that Englishmen, because of the fact that the fighting actions were far from their shores, were a little bit confined. Particularly the application of some types of MAA was excluded. Some application found the new super accurate shock means, and the French anti-vessel "Exoset AM38" rockets were a real discovery. From the both sides the most literate, technically saturated and purposeful MAA was used by the AF of Great Britain. The English MAA having only some losses from the ground fires destroyed more than 80 Argentinian FVs and did perceptible damage to the AF and substructures.

The "Harrier" fighter was the greatest hero of this war. During the war 2000 flights were made with only 42 airplanes and the technical readiness was more than 8%. First in the world the air attacks were conducted by the fighters with traditional and perpendicular flights and descend. The English fighters without losing a fighter managed to damage 28 Argentinian FVs 22 of which by the rockets of the American "AIM-9 Sidewinder" air-air class. It forms 78%, of course it was a good record, we are to remind that at the same time Israeli AFP recorded 93%, the tendency was the same, and the difference was a result of some problems. In the air war still long ago envisaged American Revolution was step by step strengthened.

On 17th January 1991 the allied forces of UNO started military operations in the long ago de facto declared war on Iraq. But the military operations were not like any other previous analogous war. The Allies only with long-range bombardment wore out the potential of Iraqi AF and the government. They were striking by various MAA, which lasted 43 days with different breaks and with strikes of other arms. At that time the allies made about 40000 fighting and considerably non-fighting flights not counting the strikes of various other MAA as well. All the flights together exceeded 110000. The density of the flights all together sometimes was about 2500-2700 daily but these were more efficient than those of the Vietnam War owing to the technical innovations named below.

The Allies together didn't lose even 70 aircrafts (the fighting losses didn't even reach to 2 dozen), but destroyed more than 130, from which 40 were injured just in the air. Only "F-15C" fighters which were mainly responsible for the air struggle performed 5900 fighting flights with 120 aircrafts and injured 37 aircrafts right in the air without losing a one. The efficiency is about 150 flights but it's necessary to take into consideration the Iraq's large air territory, where the limited aircrafts secured the air security of the whole group and brought to zero their own losses. For the first time the considerable part of air victories was gained by the middle-range rockets. The "AIM-7 Sparrow" rockets hit the target almost from the first launch, the Iraqi 24 aircrafts were crashed just from these rockets. It was a valuable victory for this kind of rockets which rapidly developed. After a year Americans already made use of the first in the world self-directed middle-range rockets of air-air class, such as "AIM-120 AMRAAM". On 27th

December 1992 the "F-16" fighter crashed the Soviet "МиГ-25" fighter in Iraq with this rocket. Not passing twenty days the same fighter with the same rocket crashed "МиГ-23" fighter, and the next day on 18th January 1993, the "F-15" - another "МиГ-25". The American new rocket was accurate; it was made to substitute the "AIM-7 Sparrow" and the big long range "AIM-54" and had the best features of those rockets.

The losses of the Allies' MAA were 0,05-0,06%.

The Iraqi army just tried to strike back with ballistic rockets against Israel and Saudi Arabia which didn't directly take part in the struggle.

According to various data Iraqis had launched 96-98 Soviet "P-1" and the Iraqi variant of these rockets "Al-Hussein", "Al-Abbas" against both states. The damages of these rockets were not large. At that time the multinational forces made use of American new "ATACMS" operative-military rocket for the first time launching only 32 rockets against the most important targets.

Just at that time under military conditions the first in the history anti-ballistic struggle took place. The Iraqi army leaving hundreds of destroyed armoured cars and tanks, deserting soldiers sustained a shameful defeat. In this war, which is accepted to be called the first Iraqi, there was made use of so many technical and arranging innovations that it certainly differed from the wars before and after that. Till now the analysts of various countries are discussing the say of this war to the world.

We'll mark out some of them:

- for the first time the mass application of winged rockets after the Second World War;
- for the first time the application of FVs with invisible technologies in the mass flights;
- for the first time antagonism between the AAMC and ballistic rockets;
- gaining of the specific weight of the application of over-precision arms;
- the wide, interdependent joint application of satellite connection and management systems in all arms of the service, air attack and distant management of the general fighting and so on.

The most striking was the influence of the FVs of the cosmic group upon the various spheres of the military affair.

When the fighting operations were developing in Vietnam between the communist and capitalist Vietnamese the Soviet Union sent the first cosmonaut to the space. At the heated moment of the Vietnam War the Americans got down on the Moon and won in the cosmic race, which was not less fierce. But at that time the cosmic scientific engineering developments hadn't yet had such an immediate and great influence on military affairs though the pre-signs could be seen already in Vietnam and Israel-Arabian wars.

As we can see there are many innovations; later with not large interruptions these also developed during the 1998, 1999, 2003 and other military operations.

The American army analysing the previous military operations of the 1980s and focusing mainly on the informational and cosmic technologies brought forward other approaches in the culture of conduction of military operations. Certainly, it was firstly based on their own experience. A great future was foreseen for the MAA, over-precision shock means, UFVs and cosmic technologies. But the success should be secured not as much by those separately as by their joint, inter-supplied, harmonious application. Besides, the enterprising, active and aggressive air reconnaissance of the American army, the acquisition of the models of the enemy's armaments and other measures should be confronted with the new achievements. It became clear from the experience of application of the MAA of the previous wars that the influence of air component didn't yet secure the desired level in the ordinary arms species. It was necessary to give impetus to the over precision arms. Some of these arms used in the Vietnam War were already developed and tested in hundreds in the 1970-80s. During the armed confrontations of 2-3 decades in damaging by the MAA the specific weight of application rose from 2-4% to 70%. In the first Iraqi war the specific weight was 3-4%. About 9000 of the generally used 220 000 aviation bombs were of great precision. in 1999 those already formed 30% of used ones; in 2001 already 60% of the bombs used in Afghanistan were of great precision. In Iraqi war of 2003 the multinational forces made use of more than 12000 over-precision MAA, the assortment of which was enlarged as well, and they formed 70% of the generally used. The experience of the two Iraqi wars (1991 and 2003) showed that the aviation performing nearly the same amount of fighting flights (about 42.000) owing to the over-precision armaments injured 4.5 times more targets for the second time: accordingly 4500 and 20000. It should be noted that the second war was short lasted, which means that not only the cases of applying over-precision armaments grew but also the density of using the MAA.

The efficiency of the modern over precision bombs and rockets is rather high.

In the general military war by the increase of the MAA inclusion the Americans changed the philosophy of the fight. The growing role of the MAA and manoeuvre and landing forces made the fight air-land, which expressed its efficiency in a number of wars. The air-land operation represents two concepts: the general military war and the extensive military operations.

Today in separate cases joint strikes of the rocket-artillery and aviation preceding the actions of the general military forces make the success.

The analyses of the "Storm in the Desert" (1991), the "Fox of the Desert" (1998) and the "Allied forces" (1998) military operations shows that in the initial stages of the MAA's strikes there were essential differences in the means. During the first the correlation of the strikes of the aircrafts and other rocket MAA is 4:1, in second and third cases the relation is already 1 : 4 and 1 : 5. That is to say today the first strikes are mainly made not by aircrafts, what is very important, and this has growing tendency in future.

Moreover, the development of the FVs, over-precision arms, electronic devices, informational technologies, automatic management and other systems can bring forward the “fire shock operations” and “firing battle” concepts in the nearest future. The above listed are the forms and modes of fighting and operative operations. The prototype of such an operation can be considered the “Fox of the Desert” operation in Iraq realized by the USA and Great Britain in 1998. It was 73 hours’ operation during which 6-9 hours mass rocket aviation attacks were conducted. For comparison we are to note that during the “Storm in the Desert” operation, which lasted 43 days, there were realized maximally 73 hours’ strikes. In 1991 there were used 282 winged rockets and in 1998 415 of such rockets: according to other data about 600. The 35 of the winged rockets used in 1991 were launched from the “B-52” bombers; in 1998 already 90 of such rockets were used. It should be specifically noted that these aircrafts were flying from hundred kilometers and without entering the zone of the AAD together with other winged rockets simultaneously launched from the ships as well as harmonized with other MAA they accurately attacked. Thus here is the prototype of those “fire shock operations”.

The development of forms of the listed firing operations was also favoured by the shift from the totalitarian war theory to the “civilized”, “bloodless” war theory. Recently in the USA there are made the so called “surgical” shock weapons and armaments which will do little damage to the peaceful population.

In the 20th century were produced the manmade weapons of unprecedented types, but in the last decade no other arm was developing so quickly as the over-precision arms. The development of these was especially favoured by the development and investment of the informational and computer technologies in the military sphere. In each war the parties willingly or forced are to choose some strategy of actions which, besides numerous factors, is closely connected with the technical saturation as well. This strategy is of great importance for the final consequence of the military operations. After the Napoleon age the world for nearly hundred years was fighting according to the theory of the totalitarian war suggested by K. Klauzevic. The best example of the totalitarian war theory could be the two world wars, which gave rise to the death of millions and destruction of states. Certainly, the collective power of the nation is always the most decisive during the wars but the humanity is little by little changing. Today the societies accept any kind of losses more sorrowfully.

While discussing general concepts of reconnaissance-striking complexes and American military we touched upon the whole issue and identified new perception. In fact there should not be undetached targets on the war stage. Whenever they are found they are eliminated. Moreover, for finding and destroying, complementary multiple means are used. That is “You see, you stab”. New level of axiom development is born. Actually, reconnaissance-striking complexes are the next steps of AO use with which AS coincide (the previous one was the reconnaissance and striking cooperation of AV, however it was separate use). Without the systematic use of AS the possibilities will be

limited. Let's remember aero-carriers which in fact are sea runaways. In terms of drawbacks they will differ with action speed from the AS, in terms of advantages they are more flexible and multifunction. Nevertheless they can be the carriers of AS. Modern fighter or fighters from the aircraft carrier ship can shoot from hundred km distance, however they can easily work together, with AS and runaways. Simply said the fighter can make a reconnaissance for a ship, shoot rockets and vice versa.

During net-centric wars the systematic use of OSMs with general informative field gives a chance to pass "results" influence from the common targets stab of opponents. The "Results theory" is not a new phenomenon in the West, but it has a great future. According to the latter it is already possible to control the intentions of the opponents forcing them to make destructive decisions beforehand. In this way the description and future of net-centric and smooth-centric wars with accurate OSM are formed. Their synthesis leads to "results" influence. However, the soldier still plays the most important role. He must be able to think, be unmistakable and act quickly.

Our region due to its numerous ethnic, political, economic and other reasons is still far from the prolonged peace. As showed the millennial Armenian history any fighting operation in the region had directly or indirectly to do with the security of the Armenian nation and its State system.

In order to estimate the role of the MAA and the aviation in general it's not necessary to touch only upon the American and Western experience. We are to learn lessons also from our not remote past. The Armenian population also made use of FVs during the Artsakh struggle for existence, which served for the Armenian people as a strategic transport in the absence of land border.

Until the opening of the Berdzor (Lachin pass/corridor) all the transportation of the Armenian side was done with the help of aviation. Without hesitation we are to note that the aviation didn't allow the enemy to empty Artsakh from native Armenians. It's well known to the history some events when the transporting aviation played an essential role in this or that struggle.

Taking into consideration all above mentioned factors, we are to be the first to pass to the methodology of technological wars, as our human resources are strictly limited. In this age of new wars we should first of all take care of the development of the MAA. It's necessary for us such MAA (e.g., of the type used in the U.S. Armed Forces) which could carry out an attack on the day in day out militarizing Azerbaijan, even only on some militarized zones. Such MAAs are reliable and satisfy the new requirements of the epoch.