Wars of the Future

***Armen Oganesyan, Editor-in-Chief of** International Affairs, **advisor to the Minister of Foreign Affairs of the Russian Federation:** Unfortunately, the new millennium has not brought peace to mankind. The global agenda still includes the security problem, the resolution of armed conflicts and the prevention of new wars. Realizing the importance of the subject, the *International Affairs'* editorial board and the Institute of International Studies at the Moscow State Institute (University) of International Relations invited experts and analysts to discuss the military concepts that are being developed in the world today and the weapons that could be used in future armed conflicts.

Although politicians, military officials and experts are continuously working on the subject the impression is that we have not yet come to clear understanding of military concepts, military challenges and threats in the modern world. How will technological development impact on the character of military doctrines and concepts?

I believe that you will agree that we are already standing literally in midstream but do not quite understand the significant, qualitative changes in types of weapons and their use. Russian and U.S. military experts recently agreed that one of the most important events of the year was the cyber attack on a nuclear facility in Iran. Many suggest that modern wars will be waged mainly in outer space and the Internet. We cannot underestimate these facts.

Scientific-technical progress and the arms race: a new quality in the 21st century – this is the subject of the first presentation.

***Grigory Povolotsky, Managing Editor of** International Affairs:* In 2010, according to the Stockholm International Peace Research Institute (SIPRI), global military spending increased 1.3% year on year, at $1.6 trillion. At the same time, a number of experts are inclined to think that the financial crisis has impeded somewhat the development of new types of weapons, citing a reduction in the total volume of funds invested in military scientific research and R&D projects in the United States and the slashing there of a number of defense research programs.

The United States remains the global leader in defense spending (43% of global spending), followed by China, Britain, France, Russia (its share of defense spending was put at 3.6%), Japan, Saudi Arabia, Germany, India, and Italy. The economic factor does not limit military-technical development (MTD) enough, if at all.

What are the distinguishing features of modern military-scientific research and R&D projects? This MTD quality is linked to two trends in the modernization of weapon systems: First, it is a significant expansion in the employment of the existing models of arms and military equipment; second is the creation of basically new, including unconventional, types of military equipment.

> The United States has not abandoned the arms race. But it has moved into a completely different dimension.

The appearance of long-range precision guided weapons, supersensitive sensors and automated command and control systems helps greatly enhance the combat effect of conventional weapons as in terms of their impact they are becoming comparable with weapons of mass destruction (WMD).

The involvement of civilian science in military research programs and the manufacturing of dual-use products poses a big danger. This means that the entire material production in some way or other meets military needs. Herein lies the main line of defense against the militarization of mankind. If technological inventions, scientific discoveries and industrial breakthroughs are good insofar as they expand, not narrow civilization's area of choice, unchecked military scientific-technical progress threatens not some potential adversaries but mankind as a whole.

Is it necessary to limit military-scientific research and R&D programs? Evidently so far no one is ready to raise the question this way.

The trailblazers of the new type of warfare are thought to be David Ronfeldt and John Arquilla, two Americans, Rand Corporation researchers who in 2000 published a book entitled *Swarming and the Future of Conflict*. That was when the following military terms gained currency: "netwar," "network-centric warfare," "combat platforms," and "combat clusters." These ideas underlie the use of unmanned aerial strike and reconnaissance vehicles, battlefield robots, rail guns – electric guns that can fire to a distance of more than 600 kilometers, hypersonic missiles flying at a speed of up to Mach 10, advanced military-technical com-

puterized information technology, combat and reconnaissance spacecraft and many, many other things, including weapons impacting on human thoughts and behavior.

The United States is already one giant step ahead of the entire world in the arms race and military R&D programs. However, by expanding its military research programs, the U.S. wants to be "two giant steps" ahead of mankind so as to remain an unchallenged military superpower for a long time. It may thus be seeking to compensate with military power the loss of U.S. domination – economic, political, financial, etc.

The number of defense research centers in the United States is not reducing. What has only been reduced is the number of enterprises involved in series production for the U.S. Armed Forces: Their merging has led to powerful industrial clusters. As for military-technical research, all technology universities in the United States have always been engaged in it and will continue to. Furthermore, by using Soviet experience, the United States has in recent years created government controlled military research institutes and even the Rand Corporation, the famous think tank organized by the USAF, engages not only in the writing of scientific papers. In addition, the U.S. also has secret scientific research groups such as Jason Society and Majestic 12 that have for decades been involved in developing super secret weapon projects in the United States.

Thinkers have at all times condemned war, dreaming of eternal peace and developing universal peace projects. They have all agreed in that war is evil that mankind must defeat because it has no other way to survive.

Grigory Tishchenko, department head, Russia's Institute for Strategic Studies: Until the mid-1960s, a significant amount of technology was flowing from the military into the civilian sector. Today, quite the contrary, civilian technology is a driving force of progress in the military sphere. For example, under U.S. regulations, R&D programs in the military sector may not be implemented if they already exist in the civilian sector.

It should be noted that research programs in the civilian sector are five to seven years ahead of the military sector. The work cycle on new large systems abroad and in Russia is between 12 and 15 years. During this time they become obsolete.

In the United States, military systems are used for decades. For example, according to official data, the B-52 warplane will be in service until 2040. The Americans modernize the B-52 and other aircraft, thus saving

money. The makeup of arms and military equipment today is determined not by the missions set before the armed forces but by the funding allocated to them. The U.S. 2012-16 draft budget is built around the idea of money saving, not the development of the military, not the creation of new weapons.

A. Oganesyan: Should the bet in Russia be placed on the development of military technology by military or civilian specialists?

G. Tishchenko: If we take a realistic view of the task at hand and considering that it is to be fulfilled with minimum costs, I believe priority needs to be given to the civilian sector. The Defense Ministry needs to ensure the flow of technology from the civilian to the defense sector.

Viktor Mizin, Deputy Director, Institute of International Studies: A little comment on dual-use technology. Here is a case in point: The Integrity operating system is used for both the F-22 warplane and the A-380 civilian airliner. This means that if some element is only used in a combat system, control over its dissemination is significantly tougher than over dual-use elements. But then if a system is available to civilians, the technology in question can easily get into the hands of, say, terrorist groups that can make a breakthrough in the development of advanced high-tech weapons. Therefore, the control problem has yet to be resolved.

The development of an operating system to control aircraft is a very complex process that takes between 15 and 20 years. I do not see any prospects of commercial companies appearing on the Russian market that would be able to develop such systems. It is not a secret that leading design bureaus in Russia still use foreign software and make no effort to design and develop domestic systems. Or these projects remain within these design bureaus as proprietary.

A. Oganesyan: I would like to go back to the question that I asked at the start of the discussion – about the influence of new weapons on military concepts, and vice versa.

Konstantin Sivkov, First Vice President, Academy of Geopolitical Problems: Here, we can speak about reciprocal influence. On the one hand, the appearance of new weapon systems provides a new impulse to the development of methods and forms of warfare. Thus, a factor in the

effective engagement of these systems is the appearance of information systems that sharply enhance the information gathering capability, the speed of the decision-making process and the provision of information to troops. All of this has created a qualitatively new sphere of information warfare. It has started playing a decisive role in modern warfare. But on the other hand, new possibilities for the conduct of warfare also have emerged.

On the other hand, the appearance of new methods of warfare sets new requirements on weapon systems. These new requirements materialize in new projects that can take between 10 and 15 years. An accurate forecast for the character of warfare over such a term is becoming a key requirement. This is why scientific and research activity and forecasts are very important in developing new weapon systems.

Armed forces often enter into a war with weapons that do not correspond to the nature of that war. A case in point is the U.S. F-14 fighter – a wonderful machine but it proved absolutely unfit for the missions assigned to the U.S. naval forces in local wars. This aircraft was designed to deal with a specific task – repulse Soviet seaborne missile-carrying aviation. But in addressing missions in the Iraqi and other conflicts, it turned out to be less effective than the F-18.

A. Oganesyan: The question is what priority requirements need to be set for military reformers. I would single out three main requirements. First, mobility. For example, this is the priority in the reform of the Bundeswehr.

Second, economy of force. Substantial personnel losses as a result of direct engagement on the battlefield always have a political boomerang effect.

Third, economy of resources.

Next I would like to discuss the concept of network-centric wars that some states have started copying blindly without applying it to their reality, after the U.S. first declared it. Do you think Russia should follow the same path or this is not applicable to Russia in the first place?

K. Sivkov: Of course it is applicable. The question is how these network-centric wars are conducted.

They are rather vulnerable to information impacts. Let's take Libya, for example. The U.S. effectively ensured the engagement of anti-aircraft missile complexes that had irradiation systems. But it had a problem with

effectively engaging a missile defense system that had no radar guidance.

Until 2007, the General Staff was considering the question of making a transition to the so-called local autonomous systems that are self-sufficient concerning information provision. It will be problematic to destroy such numerous systems. However, with a hierarchic system of network centric wars with an integrated information field, these systems can be disabled. Such systems can be disabled even by individual hackers, let alone targeted impacts. So if we are to discuss the form and the extent to which this concept can be realized in Russia, it is essential to determine which methods will be used to ensure our country's defense capability to prevent possible military threats until 2030 or better still, until 2040.

V. Mizin: There is yet another pronounced trend – domination in the information field.

K. Sivkov: Yes, this is a key question today. But what is "domination in the information field"? At what level?

If, for example, there is domination on the strategic level, this does not mean that it exists on the tactical level. It is because tactical parameters are quite different. And we can ensure domination on the tactical level by ceding it on the strategic level. And it is not a foregone conclusion that we will lose: Everything depends on the type of wars that we wage.

Nikolai Dimlevich, media projects advisor at the "Security" Regional Training and Research Center, N. E. Bauman Moscow State Technical University: The United States has declared cyberspace a zone of combat action, together with the air, naval and ground space. To understand what offensive or defensive operations Russia can conduct in cyberspace, it is essential to have legal support and a coordinating and administrative agency, which are currently nonexistent in the Russian Federation. For instance, the United States has the National Cyber Security Division. Similar agencies were established a long time ago in France, Germany and China. So the list of priority requirements for military concepts should, in my opinion, include what the Americans call continuous information operations. If we look back at the period since 2000 there were Afghanistan, Iraq, and the Greater Middle East. Today we can see how

this scenario is playing out in Syria and other states of North Africa. Remember the cyber attack on Bushehr (in Iran). After that a brilliant combat operation on the use of cyberspace was carried out by the Americans, French and especially Germans during the presidential election campaign in Iran. According to the Americans, continuity in information wars produces a concrete result.

G. Tishchenko: A comment on what the armed forces and military concepts will be like in the foreseeable future. As of now the military science not only in our country but in the world is in a kind of a crisis. If we look back over the past years, plenty has been said about the so-called new revolution in the military sphere. But there has been no revolution. What is a revolution in the military? It is, above all, a revolution in the organizational forms of warfare. If we look at network-centric wars and aerospace operations, that is nothing new but in effect the old concepts that were realized on this level of technology. They simply stuck a new label to those military operations which were known before but which expanded, received a greater scope and are now referred to as "network-centric wars."

As for a revolution in the military sphere, some advanced R&D projects, breakthroughs in engines, sensors, etc. were expected. But the specifications improvement coefficient today is 10-12%. So there is no reason to speak about a breakthrough in the military science.

Nikolai Uvarov, Deputy Director, Macroeconomic Analysis Department, Audit Chamber of the Russian Federation, Lieutenant General: Everything revolves around cyberspace. The prevailing, main principle in network-centric wars is what the Americans call "total awareness." This principle permeates in effect all of the U.S. military organizational development programs, including the 2012 budget. In the Army, the Air Force, the Navy, and the Marine Corps – everywhere priority is given to testing Global Hawk and Predator unmanned aerial vehicles (UAVs) in large numbers and at all levels – from tactical (i.e., company, battalion) to strategic.

The need to create a cyber security ministry has been mentioned here. In fact, the Russian Federation Armed Forces have the Cyber Command or Cyberspace Operations Command under the aegis of the Integrated Strategic Command. It deals with offensive operations, not only self-protection. It is a strategic command.

Everyone understands that "cyber gadgets" are vulnerable. Not sur-

prisingly a NATO spokesman recently said that we have come to a situation where it is necessary to create reserve systems that would operate when all electronic systems are disabled. What is to be done next? Return to traditional, conventional methods of troop command and control.

Now a few comments on the main presentation. The financial crisis has impacted on military-technical progress. Pentagon chief Robert Gates recently said in his programmatic statement that the time is gone when the U.S. could pay $20 million for a howitzer, $2 billion for a bomber and $6 billion for a guided missile destroyer. It is essential to save money.

This does not mean that the United States has abandoned the arms race. But it has moved into a completely different dimension. Research projects continue but they do not lead to full-scale production and are shelved. There is nothing new about that. Military people remember that under President G. Ford the B-1 bomber was developed (a bomber designed to overcome our air defense system) but then the J. Carter administration came in and the two types of aircraft were shelved although test flights had not been completed. A new administration arrived with R. Reagan, the aircraft went back into production and the bombers performed well. R&D projects can be put on hold and that is standard practice.

There was a time when military technology predetermined the development of civilian technology. This period is coming to an end.

As for network centrism, the following example could be cited: In the 1970s it took the U.S. commander-in-chief 15 minutes to get in touch with a battalion commander in the forward edge of the battle area with the most advanced communications systems. During the 1990-91 war in the Persian Gulf, that time was reduced to three minutes. Today, President Obama can contact any platoon leader within seconds with IP telephony.

Ivan Timofeev, Director, Center for Analytical Monitoring, Institute of International Studies: The subject of my presentation is modern armed conflicts and crises, and the kind of wars developed states wage today.

The main point I would like to make by way of opening the debate is that concepts for organizational development of the armed forces, technological changes, and technology policy are determined, among other things, by the types of armed conflicts that these technologies are designed for. Modern warfare, an armed conflict today is far more complex compared to past conflicts. Therefore technology that could be successfully used in those military operations that were planned during the

Cold War era is ineffectual in modern local conflicts that are subject to entirely different laws. So I would like to consider three types of modern conflicts (naturally, any typology only goes so far) and look at the impact that each type has on the character of the technological policy both of large powers and parties to these conflicts.

The first group evidently includes that which is so common today – local conflicts caused by the crisis of statehood. Here, as a general rule, a conflict starts with a civil war. This mainly applies to "Third World" countries. These conflicts break out as a result of aggravating socio-economic problems and a clash of ethnic and religious segments in a given state. They acquire an international dimension when outside forces become involved in these conflicts. This intervention can be divided into two types.

Type 1, a situation where intervention takes place in some civil or domestic affairs to increase one's influence in a given country or to undermine a rival's influence. A case in point is the situation in Georgia in 2008 when the conflict erupted over territorial and ethnic problems that Georgia had ever since the restoration of its statehood. Gradually the conflict-prone situation was fueled from the outside. Everything ended up with a short-lived but rather serious conflict that heightened the tensions between the great powers. It should be recalled that perhaps for the first time since the end of the Cold War, NATO and Russian warships were within the range of their weapons systems. The degree of the predictability of the further course of events was not very high, to put it mildly.

Type 2 represents intervention as an attempt to take control of the so-called gray areas of global politics. This refers to situations where territories appear that are not under the control of any national force that could be a party to negotiations. These territories become a refuge for terrorist and international criminal networks, etc. A case in point is Afghanistan. We do not know how this attempt to place the "gray zones" in Afghanistan under control will end. The Americans are enthusiastic whereas our experts are pessimistic. Somalia is an unsuccessful attempt to put the situation under control. A "gray zone" in its pure form and attempts to put it under control were abandoned a long time ago. It is not clear where such a situation in Libya will lead. That is to say, it is not clear what will happen there next. For Libya to become "a gray zone" would be a very, very negative development.

A few comments on the technological aspect. What happens in such conflicts due to their asymmetric nature is, above all, the testing of par-

ticular technologies. These are more or less laboratory conditions where new types of warfare, weapons and military equipment can be tested. In the case of Afghanistan there are plenty of examples – starting from the use of unmanned aerial vehicles not only for reconnaissance purposes but also for delivering air strikes. As of late the Americans started launching blimps, dirigibles to monitor the territory. It is a kind of a test site.

But there is also the reverse side, which is not discussed very much. The fact is that the technology that is tested in such conflicts comes not only from those countries that intervene but also by forces on the other side of the barricade. The term "asymmetric conflict" reflects the dual nature of technological changes. Yes, new technologies appear and they are used by developed states. But forces operating in

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"gray zones" adjust to that, offering different methods of resistance, engaging local population, terrorizing local authorities, and so on and so forth. We systematically monitor the situation in Afghanistan using open sources. The trend that we identified last year after B. Obama declared a new policy course is a significant intensification of efforts to crack down on pockets of resistance. But the intensification of coalition efforts has no effect on the number and frequency of Taliban operations nor does it have an effect on losses among the coalition forces. There are some fluctuations in the statistics of captured Taliban members: More people have started surrendering and taking the government's side. It is not clear what will happen with them in the future and where they will go then.

Another factor here is a correlation of technologies where dependence is not linear – i.e., the coalition invests huge resources into the development of new technologies, the improvement of armor technology and a number of technological innovations – from strengthening armor to disengaging ammunition in case of fire, etc. Huge amounts of money are poured into this. What is the response from the Taliban? A six-inch artillery charge planted by the roadside and detonated remotely. Or even simpler, approximately the same amount of explosives on the body of a suicide bomber who penetrates base premises (which is rare) or blows himself up near a military facility or convoy. The costs of a six-inch

charge and explosive are incomparable with the costs of tanks, new alloys, materials, and reconnaissance equipment, but the effect is the same. There is one very important aspect of the losses sustained by civilians in Afghanistan as a result of remote-controlled attacks. We have counted these losses by using open sources. Civilian losses as a result of Taliban actions are nine times higher than losses from mistaken coalition strikes. The response, the reaction from the civilian population to losses from coalition strikes is many times more intense than to losses from suicide bomb attacks.

The second type of conflict occurs between states on the regional level where participating countries cannot afford to develop a broad array of arms. They have to buy them abroad, to some degree or other. Here, too, big technological powers receive an opportunity to test new technology, if not in open conflicts, at least in the training use of these weapons.

The third type is a conflict between the global centers of force. The probability of such a conflict is rather small mainly due to the threat and the existence of nuclear weapons in these states. We have not discussed this here yet but technology could help reduce, neutralize the impact of the nuclear factor. After all, this technology will significantly affect the balance of forces and impede military planning and organizational force development in general. Can such technology be developed in the foreseeable future and what are the prospects for missile defense in this regard?

K. Sivkov: On the structural level, wars and armed conflicts in the 21st century have not changed. However, on the morphological level, there have been some significant changes.

The period of advance preparations has increased. If previously (the start, middle and end of the 20th century), as a general rule, it was in terms of months and years, now it takes several years to prepare a war on the psychological level. Morale, psychological, ideological, political and informational warfare factors have augmented considerably. Without them a war can have no success. Recent wars – in Afghanistan, Iraq, the Georgian conflict of 2008, and the war in Libya – have shown the vital importance of the troops' morale. Furthermore, troops that were less well armed but had higher morale prevailed over a militarily superior adversary.

Importantly, the role of special operations has increased considerably compared to previous wars. In many instances special operations were the

only form of warfare in low-intensity conflicts. The ideas of standoff warfare and robotic wars have been buried.

Alexander Orlov, Director, Institute of International Studies: I would like to comment on war preparations. You have said that in the past it took months to prepare a war whereas today years are needed. However, in recent times wars have been rather spontaneous. You have mentioned Afghanistan. After September 11, first airstrikes on Afghan territory began at the end of that month, i.e., in effect a couple of weeks after the tragic events in New York. Western countries had indeed been preparing the war in Iraq in advance: They had conducted a massive propaganda campaign, misleading everybody with the demonstration of test tubes with some obscure substance, as well as photos of trucks with allegedly secret labs on Iraqi roads. All of that was designed to convince the world public that the Iraqi regime had weapons of mass destruction and it kept working to improve them all the time. The U.S. secretary of state argued forcefully at the UN Security Council (citing the ever impeccable American security and intelligence agencies) that Iraq possessed weapons of mass destruction. And then he was very sorry about that. This is already history but the intricate plot of the "Iraq scam" has become a kind of classic genre. As for the 2008 war in the Caucasus, it also erupted rather spontaneously and unexpectedly although there was an escalation of tensions in the region. At any rate, Russia did not even have a week, let alone a year, to prepare for that conflict. Moscow had hours, if not minutes to make a decision about the forms of response to the blitzkrieg of the Georgian "hawks," who had put hundreds if not thousands of peaceful civilians in the sleeping Tskhinvali and other South Ossetian cities and villages on the verge of extermination. Tbilisi, however, had been preparing for the war over a number of years, carefully studying the relevant precedents and scenarios under the tutelage and supervision of its overseers across the ocean.

K. Sivkov: I am talking about a trend. A trend presupposes a spread of parameters. That is the first point.

The second point is that there is always an aggressor who prepares a war for a long time and there is a victim who has to respond on short notice.

As for the war in Afghanistan, let's remember the entire preceding period during which prolonged morale and psychological preparations

were conducted with much talk about the need to create a new world order. Economic preparations were underway and troops were configured.

Concerning Libya, it is an example of a provocation in the Middle East as a whole. Some people may disagree with me but such things do not happen by accident.

Andrei Manoilo, senior research fellow, Diplomatic Academy, Ministry of Foreign Affairs of the Russian Federation, Doctor of Science (Political Sciences), Candidate of Science (Physics, Mathematics): As we are now watching the conflict between the ruling political regime and the well organized groups of insurgents acting on behalf of the mass of the Syrian people, many are asking the question: Will the situation in Syria follow the Libyan scenario, plunging the region into the chaos of civil war and military intervention? These concerns are not groundless.

The war in Libya has already shown how quickly some tentative action by weak and divided groups of those discontented with the ruling regime can grow, first, into armed clashes and then into a civil war, leading to a major international conflict as a result of direct military intervention by Western states.

Meanwhile, the current situation in the world is so highly charged that any international conflict can trigger a new world war. The aim of any world war is to re-divide the world's political map and the historically established state and national borders. It does not matter which borders are involved – the "old" borders of former European colonies or the new geopolitical boundaries and "demarcation lines" between "world civilizations" delimiting their "natural living space": One can easily grow into another.

On the other hand, this re-division of the world is being sought by the United States which is deliberately dismantling the Yalta model of world order and playing up the need to review the "artificial and unviable" border of the former European colonies and fragments of the Ottoman Empire, which, in Washington's opinion, have shown their unsustainability as independent subjects of global politics. In this process, Libya and Qaddafi are just an excuse for a new re-division of the world while military intervention is a final argument for those whose opinion is ignored, including the indigenous population of former colonial country.

The wave of "date palm revolutions" which toppled the Tunisian and Egyptian regimes, both of which were closely linked to Washington, is

clearly stalling in Syria: This is always the case with "color revolutions" if a country's leaders are unable to show firmness and toughness. That was also the case during the "color revolution" in Uzbekistan when the ruling authorities called the action by "opposition" militant groups in Andijan an armed uprising and cruelly suppressed it with the help of loyal military units. A similar situation is now evolving around the "color revolution" in Libya. In both cases the opportunity for Western special services was lost: The "color revolution" salvo happened but, unlike in other countries, did not produce an immediate result. In this case special operation forces move into the shadows and conceal their involvement in political events (because the risk of any secret operation being disclosed increases with every day of delay), ceding their place to forces designed for direct military aggression that are brought into the region to provide military support for armed rebel groups under the cover of a peace enforcement legend. This is why the development of the situation in Syria according to the Libyan scenario seems to be not only likely but inevitable. Provided of course that Washington is not ready to abandon some of its plans to "reformat" the Middle East, with regard to that state.

Meanwhile, the fall of the Syrian regime would have tremendous implications: Alongside Egypt, Syria is one of the two poles of the Arab East, and the downfall of the Assad regime will lead to the collapse of the system of alliances in Levant. This is one of the main aims of the United States which hopes to use the technology of "date palm revolutions" to shape the managed chaos in the Middle East and North Africa into a configuration of international relations that best responds to its interests and that will probably have no room for Iran and China while Russia's influence will be sharply limited.

G. Tishchenko: I would like to go back to unmanned aerial vehicles (UAVs) as the latest trend in technological development. But it needs to be said that some difficulties arise here. First, the high costs of UAV crew training. Second, the processing of UAV data in terms of cost effectiveness. It is easier to send a ground commando team, which will carry out the mission at less expense.

The second question that I would like to address is the conceptual foundations underlying the relations between the leading military powers, in particular Russia and the United States. Analysis of all the recent documents on military organizational development and national security that were adopted in the United States at the start of this year point to a very

dangerous emerging trend. An emphasis is being put on the use of precision guided, not nuclear weapons in the first strike. This changes basically everything in our relations. Unfortunately, we have yet to study this trend in our strategic concept while the Americans avoid discussing this topic.

V. Mizin: Nuclear weapons are already becoming weapons of the poor while precision guided weapons can probably be manufactured only by two or three countries in the world. In this context, Russia is not in a very good situation.

Ilya Kramnik, political commentator, the **Voenno-promyshlennyi kurier** *newspaper:* The subject of my presentation is how we will fight in the future and with what kind of weapons.

In the next 30 to 40 or maybe even 50 years, we should not expect any breakthroughs, miracles in the tactical and technical specifications of weapons that are used on the theater of operations. Specifications are not the main quality in a weapon. The peak of performance characteristics was in the 1960s-70s, when there was a race for speed, range, and depth. During that time, the speediest aircraft, the longest range missiles, etc. were developed.

At the same time, today there is a certain degree of mythologization of new weapons, especially those that do not exist yet and that are often mentioned in the media. This mainly refers to such systems as meteorological, climatic, tectonic and even psychotropic weapons. These types of weapons do not exist yet but they are weapons of intimidation. Even plain talk can lay the groundwork for operations on the information field, which is dominated by information weapons. They will play a decisive role in future wars.

As for wars between large states, especially those with the use of weapons of mass destruction, they have become impossible today. There is a good English proverb: "People who live in glass houses should not throw stones." Practically all countries today live in glass houses.

A war between Russia and the United States, between Russia and China, between Russia and European NATO member countries would be a suicide, throwing civilization back hundreds of years. Large states will continue competing with one another – however, not directly but through participation in local conflicts in third countries, as the USSR and the US were doing during the Cold War.

Weapons are becoming technically more complex and sophisticated. For example, each new generation of aircraft takes two to three times longer to develop than the preceding one while aircraft costs increase by a factor of 10. At present, the Americans pay about $200 million for the F-22 while in the late 1970s, at the start of its full-scale production, the F-15 cost just a little over $20 million. The costs of military R&D projects have grown immeasurably. Let's look at the United States again. Today warplanes and related equipment in the United States is developed by three corporations – Boeing, Lockheed Martin and Northrop Grum- man, which have merged dozens of other design bureaus. A similar process can be observed in Russia. We are currently seeing a sharp reduction in the number of design bureaus that engage in research.

The wave of "date palm revolutions" that toppled the Tunisian and Egyptian regimes, both of which were closely linked to Washington, is obviously stalling in Syria.

Nobody knows how some fundamental breakthroughs will happen. But until they do, we will have to use the existing aircraft and equipment that go back to the 1960s-70s. One can be certain that in the event of a conflict we will see air strikes with F-18 and F-15 aircraft.

A. Oganesyan: Another topic is future armed conflicts.

K. Sivkov: Armed conflicts can be expected in the Middle East, including with the participation of Western countries.

Russia could become involved in possible armed conflicts in Central Asia due to the need to support its allies. Another zone of instability is in the Asia Pacific region, in particular Cambodia and Thailand.

All these conflicts will be largely linked to global contradictions that presuppose the building of a new world order and this order is established, as a general rule, through war. A case in point is World War I and World War II. At present a new world order is emerging: We can expect the escalation of local conflicts on the regional level that will merge together into large-scale conflicts. There is also a possibility of internal conflicts with the prospect of a serious destabilization in Russia in the foreseeable future.

Anatoly Tsyganok, Head of the Center of Military Forecasts, Institute of Political and Military Analysis: As for the causes of armed conflicts, it is important to bear in mind that a water conflict is possible within the next three to five years. Russia will perforce be drawn into it as the situation will affect Central Asia. Another conflict is possible in the Caucasus, in Nagorny Karabakh. If Azerbaijan and Armenia choose to solve this problem by military means Russia will find itself in a rather serious situation. We have a good relationship and no conflicts with Azerbaijan. Armenia hosts Russian troops. How will Russia behave in that situation? A third conflict is possible in the Middle East. I do not think that Iran will attack Pakistan, Europe or the United States. Saudi Arabia could become a target of attack.

Aleksandr Paderin, senior research associate, Institute for Military History Studies, Military Academy of the General Staff of the Armed Forces of the Russian Federation, Colonel (Ret.): On February 5, 2010, Russia's new Military Doctrine was made public. It points to a firm position and largely proactive tonality.

First, there is a sense of clear understanding of the nature of modern and possible future conflicts: It prioritizes the need to improve the air defense and space defense systems, emphasizes the danger of underestimating information warfare, and notes the limited geographic base of conflicts and their protracted character.

Second, there is also a clear understanding of what needs to be done in the Russian Armed Forces organizational development: optimization of the numerical size of military personnel, enhancement of the quality of its combat readiness (mobility) and military training, introducing sufficient social insurance, modernization of the military, and the fight against corruption.

Summing up the aforesaid, it would be correct to suggest that Russia's new Military Doctrine is indicative of Russia's determination to raise a modern and well-prepared military, able to respond to the challenges of the 21st century.

In this context, it is important to take into account the fast changing nature of modern local wars and armed conflicts. The level of threats and uncertainty factors have a significant impact on the evolution of the military-political and military-strategic situation in the world, the seats of tension and zones of conflicts, and the type of wars and armed conflicts. It should be noted that future wars and armed conflicts will be brought

about not by any one, albeit very weighty factor but by a complex of different socio-political, economic, ethnic, and religious contradictions and causes, which should be taken into consideration in analyzing the strategic content of future warfare.

A decisive role for a defending party will be played by an effective reconnaissance and intelligence system with an integrated command and control center and well-protected posts of intelligence gathering and processing for all branches and arms of service, as well as special services. Making processed intelligence data available to all agencies concerned in near real time is a must. Such intelligence system will make it possible to disclose adversary's preparations for attack in advance and take all the necessary preemptive measures.

Evgenia Pyadysheva, Executive Secretary of **International Affairs,** *Candidate of Science (History):* In the spirit of the well-known adage, "If you wish for peace, prepare for war," we would like to hope that the emphasis in this saying is on the word "peace," not "war." The years-long efforts to build a global security system will not sink into oblivion but, quite the contrary, will translate into a future doctrine of peace, not war. And Darth Vader & Co. will not become part of our reality.

It must not have been by accident that the name of a central character in the Star Wars saga was mentioned. I remember that several decades ago the United States announced plans for an ABM system and the initiative was soon dubbed "Star Wars."

U.S. military concepts and their practical implementation compel us to look into the past, assess our past defense capability and start building (modernizing) systems that will be needed to counter the missile defense systems that Western countries will deploy in Europe.

The Lisbon Agreements failed, especially after the United States and Romania recently agreed on the basing location for U.S. SM-3 interceptor missiles in 2015.

Moscow made a well-argued statement to the effect that Russia and the West need to sign some legally binding documents providing guarantees that U.S. and NATO missile defense systems will not be directed against Russian strategic ballistic missiles. Russia's position is straightforward: The European missile defense system should be based on equal participation and common and undivided security for all countries on the continent.

The latest U.S. administrations have been actively engaged in

expanding their missile defense system, building a multilayer defense across the world. So our demand is well substantiated and timely. But at the same time there is an emerging understanding that any treaty that has been signed requires discussion and ratification.

As for the U.S. Senate, recalling how the ratification of the latest START Treaty proceeded, few people can give an optimistic forecast with respect to the ratification of even a hypothetical missile defense treaty.

Our military officials believe that the U.S. missile defense system will pose a threat to Russia's nuclear deterrence capability after 2015, when U.S. interceptor missiles will be significantly modernized while the naval missile defense group will be augmented to 40 warships and include approximately 400 interceptor missiles.

This is our immediate future in which we are to live.

Now just a few words about an informational communicative phenomenon that could eventually become not only a weapon of mass warning but also of destruction. I mean social networks.

The events in North Africa and the Middle East have shown how effective communication via the Internet can be when it is necessary to prompt large masses of the people to do something. Yesterday and today, Facebook helps bring down governments and tomorrow, interstate and inter-bloc clashes could begin.

This is all a matter of technology.

A. Oganesyan: In closing, allow me to give the floor to our journal's partner and co-organizer of our discussion, Alexander Arsenievich Orlov.

A. Orlov: Thank you. Weapons of the future are directly linked to plans for their possible use. In the modern world – and this is especially typical of Western militaries – there is a pronounced trend toward removing a military serviceman performing a combat mission from the target of engagement as far as possible. This is called standoff warfare. A pilot or missile launch operator who is hundreds or even thousands of kilometers away from a target only moves the crosshairs on his computer monitor screen and he does not care what happens after that – blood, the death of often innocent civilians, and the destruction of civilian facilities, which can easily be presented as military installations.

These people are located far from tragedy and everything that happens on the ground is in effect a war game for them – something like a computer shoot 'em up game. After they have fulfilled their mission they

return to their normal daily life, drink hot coffee or something stronger and feel absolutely no compunctions but in fact feel heroes who have destroyed villains. They are further convinced of that by the media, obedient to its masters, juggling with facts like thimbleriggers to fit a preset algorithm of action. In this process, humanity which sets a human apart from an animal or cyborg of the future is lost. This complex moral concept, understandable to any normal homo sapiens, a thinking person, completely disappears from the behavior of a modern standoff warfare operator who becomes an empty appendage to an intelligent machine.

Predictably, such a "standoff murder" scheme will only continue to be improved as ever more technologically sophisticated weapons emerge. One of the most disturbing symptoms pointing to a serious disease of modern society is its moral degradation. This moral degradation is especially pronounced in the military sphere, which is graphically demonstrated by modern standoff wars with their trademark Western performance, and their tragic consequences for entire countries and nations.

A. Oganesyan: Our seminar has come to an end. We have addressed a broad range of matters related to the current and future military concepts and weapons of the future. Different points of view were presented, sometimes diametrically opposed, but all of us here have been united by our interest in the subject at hand and the deep, professional knowledge of the problem. I would like to thank everybody for this stimulating discussion.