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The views expressed are those of the author and do not represent the official policy or position of the Department of the Army, Department of Defense, or the U.S. government

# **THINKING LIKE A RUSSIAN OFFICER: BASIC FACTORS AND CONTEMPORARY THINKING ON THE NATURE OF WAR**

Timothy Thomas

## **SYNOPSIS**

This paper consists of two parts. The first part examines the basic structure of Russian military thought. The second part investigates four different sources of Russian military thinking by military, not civilian, officials. These groups are: official voices in the defense ministry, two sets of theorists who have regularly dominated thinking regarding the nature of war in Russian military publications, and individual/group thought.

The first part of the article demonstrates how Russian military thought begins with an assessment of the emerging character of war, which leads to a projected future environment. This is accomplished through the use of forecasting techniques, an evaluation of the correlation of forces and means (COFM), and an examination of the forms and methods of action. Naturally historical lessons learned, both foreign and Russian, are included in the examination. Forecasting assessments are attempts to understand the emerging nature of future war through an examination of enemy and friendly forces and each side's military-strategic thought, military-technical developments in regard to weaponry, and the military-economic structure supporting the financing of these means. An assessment of COFM is made to understand where forces are located by type, how various correlations might be used in direct or indirect modes, and what types of equipment, command and control, and logistical capabilities are available that, when considered as a whole, uncover Russian advantages and adversarial disadvantages. In these latter areas Russia finds its opportunities to project force, whether military or nonmilitary. Finally a detailed look at the forms (organizational constructs) and methods (weapons available and military art specifics, such as the nation's principles of war for the use of force) are scrutinized and compared side by side. This overall assessment provides a picture of the situation in various corners of the world or against potential adversaries in general or even isolated locations. The assessment process is continuous and updated as new information becomes available.

Simultaneously, threats, risk assessments, red lines, and targets of opportunity are assessed. Some of these factors are evident in Russia's national security strategies or military doctrinal statements. Targets of opportunity are the most difficult to predict, since they emerge along with the situation and the detailed assessments noted above. For example, in Ukraine in March 2014, Russia's assessment of the situation unfolding on the streets of Kiev was based on local Russian agents and insiders still working in the Presidential administration and in the Ukrainian Ministry of Defense. US analyst Paul Goble noted that nearly 5,000 Yanukovich backers fled with him to Russia:

Among these 5,000 from Ukraine are former interior minister Vitaly Zakharchenko, former defense minister Pavel Lebedev, former justice minister Elena Lukash, former procurator general Viktor Pshonka, former head of the national security service Grigory Ilyashov, and former vice prime minister Sergey Tabachnik. They, their allies in the banking and business communities, and others have fled to Moscow where they have purchased expensive properties in the city or land nearby. As a result of this emigration, Ukrainian citizens now occupy ‘two-thirds of the market for elite Moscow housing.’ In short, they took a lot of the wealth they had acquired in Ukraine to Russia.<sup>1</sup>

When the chaotic situation continued to spread in Kiev, an immense window of opportunity arose for Russia’s military planners in Crimea, where Russia’s Black Sea fleet was already moored. Russia moved cautiously, placing soldiers on the ground without firing a shot. When it became clear that Kiev was unable to respond to their presence (there was no one in charge) Russia’s military involvement accordingly grew quickly. The situation was reminiscent of Russian General Staff Chief Valery Gerasimov’s notion with regard to strategy that “each situation has a logic all its own.” It is through an evaluation of each developing situation such as Crimea that Russia apparently decides if direct, indirect, asymmetric, or nonmilitary actions are required. In Estonia, cyber actions were all that transpired. In Georgia, direct force and cyber issues were exploited. In Crimea, a show of force was utilized and in Eastern Ukraine, surrogate support was used (Russian military men on “vacation” acting in support of local fighters or, as National Public Radio correspondent Ann Garrels noted in her new book *Putin Country*, prisoners were offered the chance to be sent to Ukraine to fight or remain in jail).

Based on the military thought process and assessments of the situation, decisions are made as to when to begin the initial period of war (IPW) as advantages and disadvantages are uncovered. Many Russian analysts believe the IPW will be decisive element in any new conflict due to the ability of cyber methods to destroy infrastructure or command and control assets surreptitiously and with speed. The presence of overwhelming weaponry or even demonstrations of new weaponry are considered as deterrence means. If an IPW does not seem prudent at the moment, then military operations short of war (nonmilitary, indirect, asymmetric, etc.) are introduced.

The second part of the article discusses the various Russian military authors who have discussed and advised on various components of the emerging nature of war. An advantage of taking a look at so many different opinions on future war is that one can ascertain specific definitions of terms (it is always important to understand what is meant by a term, what it includes, how it could be used) and highlight new issues for study. With regard to definitions, asymmetric, indirect, and nonmilitary operations were defined, as well as the IPW, a technological information attack, new-generation war, military futurology, forecasting, and technosphere warfare, among other terms. With regard to new issues for study, Russian thinking on the use of planetary warfare and theaters of military operation definitely should be initial areas of focus and consideration by US researchers, as well as the notion that the center of gravity of future war is in the aerospace

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<sup>1</sup> Paul Goble, *Window on Eurasia: 5,000 Yanukovich Supporters Who Fled with Him to Russia Await Return*, 23 October 2014.

realm. Other interesting topics include emerging trends in armed struggles, bioweapons, new-type means and ways of conducting armed struggles, strategic deterrence (both nuclear and nonnuclear), and understanding the concept of geopolitical conditioning. A special interest is Russia's new focus on new-type warfare, which appears to be different than new-generation warfare.

Several authors stressed, in accordance with material the first part of the article, that the vital period for future war's conduct will be the opening salvos each side delivers. The Russian's appear to believe they initially will be in the form of information battles followed by aerospace operations. War's conduct will also include nonmilitary actions, information environment battles, biological weapons and nonlethal fights, the use of extensive reconnaissance with unmanned aerial vehicles or spy satellites or covert sources before battle begins, the use of robots and, if research so dictates, weapons based on new physical principles, whether they be hypersonic weapons (two types of which are already in testing and openly discussed in journals), directed energy, quantum, or laser weapons.

The specific individuals (officers in important official positions and well-respected theoretical writers) behind the concepts associated with the development of future war theory and changing nature of warfare differ in experience, creativity, and authority. They are divided into four groups in the paper. Group one includes three individuals, General of the Army Makhmut Akhmetovich Gareev, President of the Academy of Military Science, creator of the operational maneuver group concept, and veteran of World War II; General Valeriy V. Gerasimov, Chief of the Russian General Staff; and Colonel-General A. V. Kartapolov, the former head of the Main Operations Directorate and now head of the Western Military District. They are listed here for their experience and official positions.

Group two includes two people, Colonel S. G. Chekinov and Lieutenant-General (retired) S. A. Bogdanov (there is also one entry for Bogdanov and V. N. Gorbunov). They are recognized for their focus on two issues in particular, strategy and future war. They have contributed several important discussions regarding future war and its components over the past six years. Group three also is composed of two people, V. A. Kiselov and I. N. Vorobyev, who write on a variety of topics. While much of their focus is at the tactical and operational level of conflict, they also write on war's changing nature, to include the concepts of network-centric operations, indirect actions, cyberspace, and deception, among other topics. Only future war references are considered here. Finally, group four basically includes everyone else, and there are many authors who discuss directly the topic of future war or issues related to it. In all, 45 articles were considered and some summarized.

By first understanding the structure of Russian thought and then the thoughts of military professionals, Western officials and analysts should be better able to pinpoint how and what Russian officers think. This knowledge should offer advantages when meeting Russian officers in future arms control sessions, joint appearances at conferences, discussions of peacekeeping agendas, or NATO discussions involving mil-to-mil conversations by general officers from both sides. If blindsided with new concepts or thoughts, the structure offered in the article helps Western officers to place a new Russian concept within confines and imagine how it has evolved.

## Thinking Like a Russian Officer: Basic Factors and Contemporary Thinking on the Nature of War

Future war and the changing nature/character of war have always been popular topics in Russia. In the latter years of the Soviet Union, for example, the work of Marshall Nikolai Ogarkov was studied closely for his new insights into the character of future war. In the 1990s Major General Vladimir Slipchenko wrote on so-called sixth generation warfare, planetary warfare, and future war, which described war's changing character from one generation of weaponry to the next. The turn of the century and beyond has witnessed many other Russian theorists developing these topics further.

The following article takes a look at these and other topics over the past 12 years. Just a few article titles indicate the breadth and depth of the research on conflict studies in recent times in Russia: "Changing Trends in Armed Struggles," "The Art of War in the 21<sup>st</sup> Century," "Military Futurology," "Technosphere Warfare," "Indirect Warfare in Cyberspace," and "Forecasting Future War's Nature and Content," among many others.

There is one developing trend that should be pointed out, the Russian use of the term "new-type warfare" to describe, it appears, Western hybrid actions. Russian military officers have described hybrid war as a tactic the West has used against it for some time. However, it now seems to be associated with the term new-type war. For example, in February 2015 Colonel-General Kartapolov, at the time the head of the Main Operations Directorate of the General Staff, discussed Western actions as built on a foundation of hybrid actions which "include both measures of a military nature and measures without the employment of military force."<sup>2</sup> He then offered an extensive outline of a new-type war being fought against Russia (the outline is included in the discussion on Kartapolov's article below) that associated indirect actions with hybrid ones. Further, in October 2015 in Issue 10 of *Military Thought*, two Russian officers who write often for the journal, Colonel (retired) S. G. Chekinov and General (retired) S. A. Bogdanov, used the new-type warfare terminology often in an article on forecasting, as the following three examples demonstrate:

Naturally enough, a forecast of future warfare drives us to the conclusion that wars will be resolved by a skillful combination of military, nonmilitary, and special nonviolent measures that will be put through by a variety of forms and methods and a blend of political, economic, informational, technological, and environmental measures, primarily by taking advantage of information superiority. Information warfare in the new conditions will be the starting point of every action now called the new-type of warfare (a hybrid war) in which broad use will be made of the mass media and, where feasible, the global computer networks (blogs, various social networks, and other resources).<sup>3</sup>

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<sup>2</sup> A. V. Kartapolov, "Lessons of Military Conflicts and Prospects for the Development of Means and Methods of Conducting Them, Direct and Indirect Actions in Contemporary International Conflicts," *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 2 2015, pp. 28-29.

<sup>3</sup> S. G. Chekinov and S. A. Bogdanov, "A Forecast of Future Wars: Meditation on What They Will Look Like," *Voennaya Mysl' (Military Thought)*, No. 10, 2015, p. 44.

The returns of a long-term forecast enables predictions to be made that strategic goals will not be achieved in future wars unless information superiority is assured over the enemy. A special operation in a future war to misinform and mislead the other side's military and political leaders will include a set of related and carefully coordinated large-scale measures under a plan of new-type wars (hybrid wars), including employment of various actions to influence the behavior of the armed forces personnel and population of the adversary country to instigate internal tensions (split) in society.<sup>4</sup>

Informational and psychological operations in future wars will have to comply with the basic principles of new-type (hybrid) warfare—they must be timely, unexpected, and clandestine.<sup>5</sup>

Thus these authors, who had written extensively on new-generation warfare up to this point, appear to have changed their wording in accordance with Kartapolov's. It appears likely that they were merely reconciling their writing with that of an official source.

The question arises as to whether Kartapolov and the others are actually describing Western actions, as it appears, or their own actions through the use of a foreign model, as Soviet authors did. Without a doubt, the overwhelming majority of the issues raised by these authors are also part of the Russian military conceptual kit bag, as Russian actions in conflict areas often mimic most of these issues. Regardless of the outcome of the answer to this question, the new-type warfare concept should be followed in the coming months.

The analysis below thus departs from the current tendency in the West to examine conflict from the perspective of new-generation warfare. Instead, the analysis views the changing nature of war from the perspective of topics that have been in vogue for the past several decades in Russia and are used by General Staff leaders today, including the use of forecasting, assessments of the correlation of forces and means (COFM), and the forms and methods of fighting as well as the new-type warfare concept. Chief of the General Staff V. V. Gerasimov, for example, uses all of these terms frequently in his speeches, but he has not referred to the new-generation warfare concept. There are a number of thoughts that he must consider, and many are included in the discussion that follows.

### **New Terms, Old Terms, and Important Authors**

A new Russian term to which much attention is being devoted in the West is new-generation warfare (NGW), which clearly has future war overtones. The word first appeared in 2008 in an article in *Military Thought* in regard to robotics. Since then it has appeared on a very limited basis. In 2012 and 2013 the issue was discussed on occasion in one or two Russian publications, resulting in a capstone *Military Thought* article on the topic in 2013 by authors S. G. Chekinov and S. A. Bogdanov. NGW was soon popularized further in an excellent paper written by Latvian Army officer Janis Berzins.

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<sup>4</sup> Ibid., p. 45.

<sup>5</sup> Ibid., p. 46.

Another Russian term, used in 2015, was “new-type war.” It was used by Colonel- General A. V. Kartapolov, the former head of the General Staff’s Main Operations Directorate. His description of new-type wars focused on how Western nations appear to plan to fight, to include a brief mention of hybrid war. However, the term “new-type war” has not been used since, similar to NGW.

What terms DO appear in Russian discussions of armed conflict are associated with thinking from decades ago, indicating a strong continuity of thought in Russian military theory. The terms forecasting, correlation of forces (COF), and, most often, the “forms and methods” of warfare continue to appear in the speeches of important officers, such as Gerasimov. They are defined and discussed below and are then related to the topics of future war and war’s changing nature. This is accomplished through an examination of the work of four groups of military writers, whose articles are summarized. Important items for consideration are highlighted.

### **Forecasting, COF, Forms and Methods: a Look at Continuity of Thought Past to Present**

In a 1975 Russian book on forecasting,<sup>6</sup> authors Yu. V. Chuyev and Yu. B. Mikhaylov stated that a forecast “was what may occur,” while a plan was defined as “what is supposed to occur.”<sup>7</sup> Forecasting was more specifically defined as “the study of the military-political situation, the pattern of future war, the prospects of developing strategy, operational art, and tactics, the qualitative and quantitative composition of the means of armed conflict (one’s own and the enemy’s), the prospects for the development of the war economy in the future, and also the forecasting of the enemy’s strategic and tactical plans.”<sup>8</sup> All of these are linked. Four types of military forecasting were described: military-strategic, operational-tactical, military-economic, and military-technical.

Military-strategic forecasting was said to examine the character of a war under certain conditions determined by a variety of input data.<sup>9</sup> It looks at the character and means of conducting future wars that may occur. A forecast is made of objectives, missions, plans, and the composition of the Armed Forces of friendly and enemy countries. In 2013, to demonstrate the continuity of this term in military affairs, in an article in *Voyenno-Promyshlennyy Kuryer*, Gerasimov noted that “each war has a unique logic all its own,”<sup>10</sup> which closely approximates the 1975 idea of examining the character of war under “certain conditions determined by a variety of input data.” Military-economic and military-technical forecasting (operational-tactical forecasting will not be covered) were defined by Chuyev and Mikhailov in the following manner. Military-economic forecasting is “inseparable from the forecasting of the economy of the entire country (or even a number of countries linked by common aims and problems), and is inextricably bound up with all divisions of the military forecasting system...”<sup>11</sup> “Data” for military-economic forecasting is provided by

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<sup>6</sup> Yu. V. Chuyev and Yu. B. Mikhaylov, *Forecasting in Military Affairs*, Moscow 1975, translated into English by the DGIS Multilingual Section, Secretary of State Department, Ottawa Canada, Published under the auspices of the United States Air Force.

<sup>7</sup> Ibid., p. 6.

<sup>8</sup> Ibid., p. 14.

<sup>9</sup> Ibid., p. 17.

<sup>10</sup> Valery Gerasimov, “The Value of Science is in Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying out Combat Operations,” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 26 February 2013.

<sup>11</sup> Chuyev and Mikhaylov, pp. 17, 19.



military-strategic forecasting, which provides information on the possible nature of armed conflict, as well as the potential and the projected scale of the effect of the use of the armed forces on the economy. Military-technical forecasting provides information about the potential characteristics of models of weapons and military equipment and the prospects for development of particular weapon types and systems.<sup>12</sup> Further, there are short-term (precise, detailed, 5 years), medium-term (5-10 years), and long-term (beacons, general directions, over 10 years) types of forecasting.<sup>13</sup>

Chekinov and Bogdanov, two of Russia's most popular military authors, offered examples of short- and long-term forecasting. They noted that future wars will be launched by electronic warfare (EW) forces, which will protect friendly forces, block foreign propaganda disinformation, and strike at enemy EW forces and assets, blending with strategic and aerospace operations, with the latter augmented by cruise missiles and reconnaissance "outfits (UAVs, robots)" delivering strikes and fires. Many of these assets are available today. Long-term forecasts predict that strategic goals will not be achieved in future wars unless information superiority is assured over the enemy.<sup>14</sup>

This Russian explanation of forecasting causes one to consider a new concept, what might be termed "strategic-technical" forecasting. In the past, Lenin and Engels used to state on occasion that technology determines tactics. In this day, with rapid advancements in technology and Russia's focus on new issues like planetary theaters of war, it would now be fair to assert that "technology determines strategy," as a series of strategic technical developments, from reconnaissance-strike assets to satellites controlling missiles in flight to weapons based on new physical principles, continue to complicate our assessments of future war and cause us to relook how strategy might be interpreted and unfold from country to country.

A second element of traditional military thought is COFM. In 1984, in an article in *Military Thought*, author N. N. Kuznetsov noted that the laws of armed struggle include the dependence of the course and outcome of an armed struggle on the correlation of combat power of the forces of the opposing sides; the dependence of forms and methods of operations on weapons, equipment, and personnel; and the interdependence of the forms and methods of operations being conducted at different levels.<sup>15</sup> Again, to demonstrate continuity of thought, in 2014 Gerasimov stated that institutes should make a determination of the optimal COFM of the Armed Forces of the Russian Federation, their qualitative and quantitative make-up, and the forms and methods of their combat employment.<sup>16</sup> Chekinov and Bogdanov, writing in the same year, noted that innovations must be taken into consideration along with changes in the forms and methods of fighting and that an

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<sup>12</sup> Ibid., p. 19.

<sup>13</sup> Ibid., p. 14.

<sup>14</sup> S. G. Chekinov and S. A. Bogdanov, "A Forecast of Future Wars: Meditation on What They Will Look Like," *Voennaya Mysl' (Military Thought)*, No. 10, 2015, pp. 45.

<sup>15</sup> N. N. Kuznetsov, "On the Categories and Principles of Soviet Military Strategy," *Voennaya Mysl' (Military Thought)*, No. 1 1984, p. 34.

<sup>16</sup> V. V. Gerasimov, "The Role of the General Staff in the Organization of the Country's Defense in Accordance with the New *Statue on the General Staff*, Approved by the President of the Russian Federation," *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 1 2014, pp. 14-22.

improved version of the COF is now used in various calculations of the Russian Federation Ministry of Defense (RF MOD) research organizations.<sup>17</sup>

The term COF is defined in the military encyclopedia as follows:

An objective indicator of the combat power of opposing forces, which makes it possible to determine the degree of superiority of one force over the other. It is determined by comparing quantitative and qualitative characteristics of subunits, units, combined units, and armaments of friendly and enemy troops (forces). It is calculated on a strategic, operational, and tactical scale throughout an entire area of operations, in the main sector and in other sectors.<sup>18</sup>

When constructing strategy against a potential adversary, the latter's "political, economic, scientific and technical, military, ideological, demographic, psychological, geographic, and other factors" are considered as part of the correlation of forces, according to a 1968 *Military Thought* article, in order "to uncover intentions, plans, capabilities, concepts, and methods."<sup>19</sup> Strategy requires a continuous reassessment of the capabilities of potential adversaries and results in updated modeling of the correlation of forces between nations. Superiority is nothing but a favorable opportunity. A 1969 *Military Thought* article noted that the decisive role in battle is played by the commander's skill which, in author S. Tyushkevich's assessment, is another aspect of the COF.<sup>20</sup> He added that timely logistic deliveries are "most essential" to COF; an effective change in the COF comes about through the offensive; forecasts should be prepared ahead of time to anticipate events and facilitate corrections to plans; and, in addition to evaluating quantitative and qualitative factors, commanders can uncover hidden factors that have the capability of influencing the COF.<sup>21</sup>

With conventional forces, the COF changes slowly. Nuclear weapons change the COF immediately, according to Tyushkevich. With capabilities changing, the COF also depends on the function of time. The methods and means of using the time factor are interrelated with the element of surprise, which can change the COF quickly when properly employed. In addition to evaluating quantitative and qualitative factors, commanders can also uncover hidden factors that have the capability of influencing the COF. All of the above objective opportunities are dependent on a commander's use of his subjective factor to take advantage of them.

There are several examples of the COF today. In the Western Military District, for example, three new divisions and a new commander, Kartapolov, have moved there. This has dramatically changed the COF. It was noted by Aleksandr Khramchikhin, Deputy Director of the Institute of

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<sup>17</sup> S. G. Chekinov and S. A. Bogdanov, "Military Futurology: Its Origin, Development, Role, and Place within Military Science," *Voennaya Mysl' (Military Thought)*, No. 8 2014, p. 26.

<sup>18</sup> N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 691.

<sup>19</sup> V. Sokolovskiy and M. Cherednichenko, "Military Strategy and its Problems," *Military Thought*, No. 10, 1968, as translated and printed in *Selected Readings from Military Thought (in English)*, Volume 5, Part II, pp. 3-17.

<sup>20</sup> S. Tyushkevich, "The Methodology for the Correlation of Forces in War," *Military Thought*, No. 6 1969, as translated and printed in *Selected Readings from Military Thought: 1963-1973 (in English)*, Volume 5, Part II, pp. 57-71.

<sup>21</sup> Tyushkevich.

Political and Military Analysis, which Canadian, Norwegian, and Denmark military contingents are very weak, implying that in the Arctic the COFM is in Russia's favor. He adds that the lack of US armed forces in the European Arctic makes it difficult to consider an armored battle in the Arctic ever occurring. General of the Army M. A. Gareev noted in 2010 that now we are dealing with a correlation of direct and indirect actions, and Gerasimov noted in 2013 that there is a correlation of military to nonmilitary actions to consider. In 2014 Gerasimov and the Chekinov and Bogdanov "team" talked about forecasting and the COF.

In addition to forecasting and COF, forms and methods for the employment of forces appear to hold a significant place in Russian military thought. They are often ignored in the West, perhaps because they appear almost neutral or vanilla in meaning. Actually both terms are very important. They have direct relevance as to how the military takes advantage of war's changing nature, as well as how future war might be conducted. Gerasimov mentioned them eleven times in his popular 2013 speech, yet hardly anyone commented on them.

According to the Russian military encyclopedia, forms of military operations are employed in conformity with the scope or scale of combat. They include operations, engagements, combat, and strikes. They also include combat arms capabilities, the objectives of military operations, and the nature of assigned missions.<sup>22</sup> New-generation wars, for example, were forecasted by Chekinov and Bogdanov to radically alter the character and content of armed struggle in the following manner, starting with more traditional forms:

Intensive fire strikes against seats of national and military power, and also military and industrial objectives by all arms of the service, and employment of military space-based systems, electronic warfare forces and weapons, electromagnetic, information, infrasound, and psychotronic effects, corrosive chemical and biological formulations in new-generation wars will erode, to the greatest extent possible, the capabilities of the adversary's troops and civilian population to resist. It is also expected that nontraditional forms of armed struggle will be used to cause earthquakes, typhoons, and heavy rainfall lasting for a time long enough to damage the economy and aggravate the socio-psychological climate in the warring countries.<sup>23</sup>

In a *Military Thought* article in 2008 it was stated that the term "form" describes the organization of the substance of the modes of combat actions. It represents the goal-oriented, organizational (to include command and control aspects), spatial, temporal, and quantitative confines of the Armed Forces' employment. It is the organizational side of troop actions.<sup>24</sup>

Methods include the aggregate of forms, modern techniques, and procedures employed in a specific logical sequence to achieve effective solutions to problems of military science. This is

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<sup>22</sup> N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar'* (*Military Encyclopedic Dictionary*), 1983, Moscow: Military Publishing House, p. 782.

<sup>23</sup> S. G. Chekinov and S. A. Bogdanov, "The Nature and Content of a New-Generation War," *Voennaya Mysl'* (*Military Thought*), No. 10 2013, pp. 13-25.

<sup>24</sup> O. V. Korol and N. L. Romas, "Form of Military Actions: On the Meaning of the Category," *Voyennaya Mysl'* (*Military Thought*), from Vol. 3 2008 of the Eastview publication *Military Thought: A Russian Journal of Military Theory and Strategy*, pp. 149-153 (in English).

an applied area of the methodology of military theory and practice. It can be general and thus used for research of any type, or it can be more specific, such as determining the procedure of solving a specific problem.<sup>25</sup> In a 2010 article in *Military Thought* the methods (ways) were described as a sequence and technique for employing forces and means to fulfill tasks in an operation. Authors M. G. Valeyev and N. L. Romas, unhappy with this dictionary definition (which they cited from a 1997 *Military Thought* article), defined a method of warfare as a specific way that troops accomplish their mission by employing actions characteristic of a method's essence, combination of processes, techniques, and rules of their use.<sup>26</sup> For example, a technique might be to take an opponent by surprise. Analysis suggest that troop armaments (that is, weaponry's development directly prompting the methods of troop action) and the principles of military art (if time is the property in question, methods could be simultaneous or consecutive actions) have the greatest impact on methods.<sup>27</sup>

Thus, the somewhat benign-sounding terms “forms and methods” of actions are actually very important, for they provide the manner in which future wars may be conducted. Specific issues, such as the manner in which disinformation is used, the principles of war, the use of cunning, and other military actions, can be found therein. Forms and methods also include nonmilitary, indirect, and asymmetric methods of acting. Gerasimov pointed this out in his 2013 article, which listed traditional forms and methods and what he called “new” forms and methods. When possible, the issues of forms and methods should be followed closely. They may offer key indicators as to “how” future war will be conducted.

### **Grouping Writers by Importance**

There are specific individuals (officers in important official positions and well respected theoretical writers) behind the concepts associated with the development of future war theory and changing nature of warfare. These individuals differ in experience, creativity, and authority, but are worthy of close tracking for not only new or creative input, but also similarities and differences in emphasis. They can be subdivided into four separate groups, with the first three groups immediately recognizable to Russian military specialists due to their composition.

Group one consists of three individuals: General of the Army Makhmut Akhmetovich Gareev, President of the Academy of Military Science, creator of the operational maneuver group concept, and veteran of World War II; General Valeriy V. Gerasimov, Chief of the Russian General Staff; and Colonel-General A. V. Kartapolov, the former head of the Main Operations Directorate and now head of the Western Military District. They are listed here for their experience and official positions.

Group two consists of two people: Colonel S. G. Chekinov and Lieutenant General (retired) S. A. Bogdanov (there is also one entry for Bogdanov and V. N. Gorbunov). They are recognized for their focus on two issues in particular: strategy and future war. They have contributed several important discussions regarding future war and its components over the past six years.

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<sup>25</sup> Ogarkov, p. 440.

<sup>26</sup> M. G. Valeyev and N. L. Romas, “Choosing Methods of Warfare,” *Voennaya Mysl' (Military Thought)*, No. 6 2010, pp. 4.

<sup>27</sup> *Ibid.*, p. 5, 6, 8.

Group three also comprises two people: V. A. Kiselov and I. N. Vorobyev, who write on a variety of topics. While much of their focus is at the tactical and operational level of conflict, they also write on war's changing nature, to include the concepts of network-centric operations, indirect actions, cyberspace, and deception. Only future war references are considered here.

Finally, group four basically includes everyone else. There are many authors who discuss directly the topic of future war or issues related to it.

Several Russian military authors have stressed that the vital period for future war's conduct will be the opening salvos each side delivers. The Russians appear to believe they initially will be in the form of information battles, followed by an aerospace operation. War's conduct will also include nonmilitary actions, information environment battles, biological weapons and nonlethal fights, use of extensive reconnaissance before battle begins, and the use of robots, as the following discussion illustrates.

In the course of this analysis the following articles are covered.<sup>28</sup> The main Russian military sources utilized are *Military Thought*, the *Military-Industrial Courier*, *Red Star*, and the *Journal of the Academy of Military Science*. The list of articles is followed by a summary of each one, emphasizing important aspects of each.

#### GROUP ONE

- “On Several Characteristic Aspects of Future War,” *Military Thought*, 6/2003, pp. 52-59, M. A. Gareev
- “Strategic Deterrence: Problems and Solutions,” *Krasnaya Zvezda (Red Star)*, No. 183, 8 October 2008, p. 8, M. A. Gareev, Eastview.com download, 17 March, 2010.
- “Lessons and Conclusions Drawn From the Experience of the Great Patriotic War for Building Up and Training the Armed Forces,” *Military Thought*, 5/2010, pp. 10-25, M. A. Gareev
- “Anticipate Changes in the Nature of War: Every Era Has its Own Kind of Military Conflict, its Own Constraints, and its Own Special Biases,” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 5 June 2013, M. A. Gareev
- “How Does One Develop a Modern Army?” *Krasnaya Zvezda Online*, 11 March 2016, unattributed report summarizing Gareev's speech.
- “The Value of Science is in Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying Out Combat Operations,” *Military-Industrial Courier*, 26 February 2013, V. V. Gerasimov
- “The Role of the General Staff in the Organization of the Country's Defense in Accordance with the New Statue on the General Staff,” *Bulletin of the Academy of Military Science*, 1/2014, pp. 14-22, V. V. Gerasimov

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<sup>28</sup> They are not listed here as the usual bibliographic reference, but rather with the title first to show specific topics. This helps analysts uncover which actions are most likely to be used in future conflicts, and it helps to uncover specific topics that lead to a broader perspective on war's changing nature and the content of future war. When viewed over time, in this case from 2003 to 2015, such a list also helps the reader to pick out continuities in Russian thought.

- “New Forms of Confrontation Employed by Western Countries Will Be Considered when Developing Russia’s Defense Plan,” *Army Journal*, No. 3 2015, no page numbers (introductory comments), V. V. Gerasimov
- “The Syrian Experience. Hybrid Warfare Requires High-Tech Weapons and Scientific Substantiation,” *Military Industrial Courier Online*, 9-15 March 2016, V. V. Gerasimov
- “Lessons of Military Conflicts and Prospects for the Development of Means and Methods of Conducting Them, Direct and Indirect Actions in Contemporary International Conflicts,” *Bulletin of the Academy of Military Science*, 2/2015, pp. 26-36, A. V. Kartapolov

#### GROUP TWO

- “On the Character of Armed Confrontation in the Twenty-First Century,” *Military Thought*, 3/2009, pp. 2-14, S. A. Bogdanov and V. N. Gorbunov
- “Asymmetrical Actions to Maintain Russia’s Military Security,” *Military Thought*, 3/2010, pp. 13-22, S. G. Chekinov and S. A. Bogdanov
- “Strategy of the Indirect Approach: Its Impact on Modern Warfare,” *Military Thought*, 6/2011, pp. 3-13, S. G. Chekinov and S. A. Bogdanov
- “The Initial Period of War and its Influence on the Preparation of the Country for Future Wars,” *Military Thought*, 11/2012, pp. 14-27, S. G. Chekinov and S. A. Bogdanov
- “The Nature and Content of a New-Generation War,” *Military Thought*, 10/2013, pp. 13-24, S. G. Chekinov and S. A. Bogdanov
- “Military Futurology: Its Origin, Development, Role, and Place within Military Science,” *Military Thought*, 8/2014, pp. 19-29, S. G. Chekinov and S. A. Bogdanov
- “The Art of War in the Early 21<sup>st</sup> Century: Issues and Opinions,” *Military Thought*, 1/2015, pp. 32-43, S. G. Chekinov and S. A. Bogdanov
- “Forecasting the Nature and Content of Future Wars: Problems and Opinions,” *Military Thought*, 10/2015, pp. 41-49, S. G. Chekinov and S. A. Bogdanov
- “Modern Military Art in the Context of Military Systematology,” *Military Thought*, 11/2015, pp. 23-33, S. G. Chekinov and S. A. Bogdanov

#### GROUP THREE

- “The New Strategy of the Indirect Approach,” *Military Thought*, 9/2006, pp. 2-5, I. N. Vorobyov and V. A. Kiselev
- “Transition of the Ground forces to a Brigade Structure as a Phase in the Development of their Maneuver Capabilities,” *Military Thought*, 2/2010, pp. 18-24, I. N. Vorobyov and V. A. Kiselev
- “Russian Military Schools,” *Military Thought*, 3/2010, pp. 43-49, I. N. Vorobyov and V. A. Kiselev
- “Light Armed Formations in the System of Modern Combined Arms Operations (Battle),” *Military Thought*, 5/2010, pp. 26-34, I. N. Vorobyov and V. A. Kiselev

- “The Role of Military Science in the Formation of a New Version of Russia’s Armed Forces, *Military Thought*, 2/2011, pp. 40-48, I. N. Vorobyov and V. A. Kiselev
- “Commentary on the Article ‘Warfare Today and in the Future,’” *Military Thought*, 5/2011, pp. 54-58, I. N. Vorobyov and V. A. Kiselev
- “From Modern Tactics to the Tactics of Network-Centric Actions,” *Military Thought*, 8/2011, pp. 19-27, I. N. Vorobyov and V. A. Kiselev
- “The Present Stage of Military Theory in Russia,” *Military Thought*, 9/2011, pp. 74-78, I. N. Vorobyov and V. A. Kiselev
- “Cybernetics in the System of Network-Centric Actions,” *Military Thought*, 4/2012, pp 17-25, I. N. Vorobyov and V. A. Kiselev
- “New Trends in the Development of Tactical Reconnaissance,” *Military Thought*, 5/2013, pp. 54-63, I. N. Vorobyov and V. A. Kiselev
- “Russian Military Theory: History and Today,” *Military Thought*, 8/2013, pp., 28-42, I. N. Vorobyov and V. A. Kiselev
- “Strategies of Destruction and Attrition: A New View,” *Military Thought*, 3/2014, pp. 45-57, I. N. Vorobyov and V. A. Kiselev
- “Trends in the Development of Network-Centric Actions,” *Military Thought*, 5/2014, pp. 10-17, I. N. Vorobyov and V. A. Kiselev
- “Indirect Warfare in Cyberspace,” *Military Thought*, 12/2014, pp. 21-28, I. N. Vorobyov and V. A. Kiselev
- “Hybrid Operations as a New Form of Military Confrontation,” *Military Thought*, 5/2015, pp. 41-48, I. N. Vorobyov and V. A. Kiselev

#### GROUP FOUR

- “The Probable Character of Future Warfare,” *Bulletin of the Academy of Military Science*, 2/2005, pp. 126-129, P. A. Dul’nev and E. A. Bryuzgin
- “Development and Use of Nonmilitary Measures to Reinforce the Military Security of the Russian Federation,” *Military Thought*, 5/2009, pp. 2-12, V. I. Lutovinov
- “Warfare Today and in the Future,” *Military Thought*, 2/2011, pp. 3-12, E. O. Novozhilova
- “Technosphere Warfare,” *Military Thought*, 7/2012, pp. 22-31, V. V. Bukharin and S. S. Semonov
- “Tendencies in the Changing Character of Armed Struggles in Military Conflicts in the First Half of the 21<sup>st</sup> Century,” *Military Thought*, 11/2012, pp. 40-46, S. V. Kuralenko
- “The Future is being Laid Today: Armed Forces Structure Theory Must Correspond to the Nature of Future Wars to the Maximum Extent Possible,” *Military-Industrial Courier*, March 2013, Oleg Falichev
- “Information Resource and Information Confrontation: their Evolution, Role, and Place in Future War,” *Armeyskiy Sbornik (Army Journal)*, No. 10 2013, pp. 52-57, Vladimir Slipchenko
- “A War of the Future,” *Russia in Global Affairs*, 4/2013, p. 131, Andrei Baklanov

- “Information is the Best Defense. Scientists Call for Sixth Technological Generation to Be Adopted into the Armory,” *Military-Industrial Courier*, June 2014, Konstantin Sivkov
- “Political Engineering of Color Revolutions: Ways to Keep Them in Check,” *Military Thought*, 9/2014, pp. 3-11, A. N. Belsky and O. V. Klimenko
- “Principal Changes in the Nature of Armed Struggle in the First Third of the 21<sup>st</sup> Century,” *Bulletin of the Academy of Military Science*, 1/2015, pp. 44-51, P. A. Dul’nev and V. I. Orlyanskiy

Several of the articles in *Military Thought* were the first article in the edition, indicating their importance, and the others were either close to the top or put alone in the middle of an edition so that they stood out. Thus, the importance of these concepts was obvious to all in Russia, but perhaps not to foreign analysts. Few focused on nonmilitary, indirect and asymmetric operations over the past decade as the Russians have. This is understandable, since each nation has its own set of analysts and experts who see things from their own perspective and terms (hybrid, gray, etc.).

### **Examining the Four Groups**

The analysis below indicates that Russia is not only putting in place the military-industrial infrastructure for new weaponry, but also continuing to develop the military thought that would take advantage of new technologies and social, financial, and geopolitical conditions that can provide significant advantages to the military in case of conflict and in line with the changing nature of conflict. These developments and thought processes need to be studied and digested by Western analysts so that they can offer US decision-makers their best estimate of the character of Russia’s future war thought, the direction in which Russia’s military appears to be heading, and, thus, the types of actions that could either support or deter Russian plans.

The purpose of this examination is to stress the items that appear important to these selected and important military authorities. The overall impact of their thoughts, the vectors they seem to follow, and the basic concepts and direction of Russian military thought are thus exposed. For the Western audience it is important to note the stress placed on the expanded role of information; the importance of the initial period of war; the role of noncontact and planetary operations; and, perhaps most important of all, the emphasis placed on the standard method of analyzing contemporary events, which has continued for decades: first, the forecasts and COFM aspects, which serve as the estimate of the situation, followed by the forms and methods of confronting and deterring correlations or forecasts that Russia is confronting. What Russians offer are ways to counter Western developments. How and when to apply force is more subjective and dependent on the leadership’s overall appraisal of risk assessments and geopolitical conditions. A good example of the result of such a process is the Russian intervention into Crimea. These actions included both direct means and indirect or asymmetric ones, or, as Gareev notes, the correlation of both, as well as a continuous reassessment of the situation.

The following summary highlights what appeared to be the main points of important presentations by Russian military authors. The summary is broken out according to the four groups previously mentioned. The author’s name is presented first, then the year of his article, a shortened version of the title, and then the highlights of the article in regard to the themes of the changing



nature of war, future war, and what a Russian officer deems important in the examination. The exact title and place where the article appeared is in a corresponding footnote.

## **Group One: Gareev, Gerasimov, Kartapolov**

### **President of the Academy of Military Science, General of the Army Makhmut Akhmetovich Gareev:**

#### *2003-Aspects of Future War*

**Evolving characteristics of future war:** be prepared for local and regional wars; focus on the initial period of war (IPW); be ready to use or confront indirect actions often fostered by the information struggle; air and space theaters of war are points of concern; achieve control over the armed forces; high-precision weapons change the nature of hostilities.<sup>29</sup>

**Forecasting future war:** correct forecasts alone can help determine which armed forces and which troops will be required; identify the general trends in which the nature of armed struggle is developing.<sup>30</sup>

#### *2008-Strategic Deterrence*

**Strategic deterrence:** this asymmetric approach is part of a set of interrelated political, diplomatic, information, economic, military, and other measures that deter, reduce, or avert threats and aggressive actions by any state or coalition of states;<sup>31</sup> Russia's main effort will be directed at the destruction of their unified information space, sources of intelligence, navigation and guidance systems, and communications and command and control systems.<sup>32</sup>

#### *2010-Great Patriotic War Lessons*

**Indirect actions and COF:** the methods of waging armed conflicts are changing significantly. Above all, this concerns the correlation of direct and indirect actions in strategy. The indirect actions are tied to political, economic, and psychological influences on the enemy and to methods of feeding him disinformation and destroying him from within.<sup>33</sup>

#### *2013-Anticipate Changes in the Nature of War*

**Nature of War:** the nature of war has changed, since the use of nonmilitary actions means that the border between war and peace is vaguer and less defined. Nonmilitary means have existed at all times, as they imply the use of not only indirect actions, but also disinformation, deception and stratagem, and intelligence and counterintelligence.<sup>34</sup>

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<sup>29</sup> M. A. Gareev, "On Several Characteristic Aspects of Future War," *Voennaya Mysl' (Military Thought)*, No. 6, June 2003, pp. 52-59.

<sup>30</sup> *Ibid.*, p. 54.

<sup>31</sup> M. A. Gareev, "Strategic Deterrence: Problems and Solutions," *Krasnaya Zvezda (Red Star)*, No. 183, 8 October 2008, p. 8, as downloaded from Eastview.com on 17 March, 2010.

<sup>32</sup> *Ibid.*

<sup>33</sup> M.A. Gareev, "Lessons and Conclusions Drawn From the Experience of the Great Patriotic War for Building Up and Training the Armed Forces," *Voennaya Mysl' (Military Thought)*, No. 5 2010, p. 20.

<sup>34</sup> M. A. Gareev, "Anticipate Changes in the Nature of War: Every Era Has Its Own Kind of Military Conflict, and its Own Constraints, and its Own Special Biases," *Voyenno-Promyshlenny Kuryer Online (Military-Industrial Courier Online)*, 5 June 2013.

**Forms and Means:** some so-called nonmilitary forms and means of warfare saw unprecedented technological development and acquired a very dangerous, practically violent character. For example, covert cyber-attacks can cause serious complications in the energy, banking, and financial system of opposing countries, so it will be unclear against whom to declare war.<sup>35</sup>

#### *2016-Develop a Modern Army*

**Confront hybrid threats asymmetrically:** the threat to Russia is connected, in particular, with information and other subversive operations, the creation of managed chaos for the purpose of provoking various kinds of disturbances, and the disruption of the state's internal resilience, as was done in Iraq, Libya, and Ukraine. It is therefore important for military science to provide an answer to the question of how to counter these so-called non-military threats – “soft force,” and hybrid wars in general.<sup>36</sup> The main emphasis must be placed on asymmetrical means and methods of operation.<sup>37</sup> Using electronic and other asymmetrical means to disrupt the communication, navigation, air defense, nuclear force, and reconnaissance systems can do much to weaken that advantage of the opposing side.<sup>38</sup>

**Training:** Armed Forces' training must be used to correctly predict the character of armed warfare and, based on that, determine not only what to teach the troops, but also how to teach it under conditions that represent real activity as authentically as possible.<sup>39</sup>

### **Russian Chief of the General Staff, General of the Army Valery Gerasimov:**

#### *2013-Value of Science*

**Nonmilitary methods:** 21<sup>st</sup> century wars are not even declared; nonmilitary methods now surpass military actions by a 4:1 ratio; this takes place with the involvement of the population's protest potential, special operations forces, and covert military and information warfare measures. Remote noncontact influence methods are achieving the goals of battles and operations, and new methods of carrying out military operations (no-fly zones, private military companies, etc.) are being used.<sup>40</sup>

**Unique character of war:** foreign experiences must not be copied. Each war requires an understanding of its own particular unique character.<sup>41</sup>

**Forms and methods:** these include the use of special operations forces and internal oppositions for the creation of a “continually operating front over the entire territory of the opposing state, and also information influence, the forms and methods of which are continually being improved;”<sup>42</sup>

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<sup>35</sup> Ibid.

<sup>36</sup> Unattributed report, “How Does One Develop a Modern Army?” *Krasnaya Zvezda Online*, 11 March 2016.

<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

<sup>40</sup> Valery Gerasimov, “The Value of Science is in Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying out Combat Operations,” *Voyenno-Promyshlenny Kuryer Online (Military-Industrial Courier Online)*, 26 February 2013.

<sup>41</sup> Ibid.

<sup>42</sup> Ibid.

information conflict, in particular, opens up “extensive asymmetric capabilities for the reduction of an enemy’s combat potential.”<sup>43</sup>

#### *2014-Role of the General Staff in Organizing Defense*

**Nature of armed struggle:** the spectrum of tasks before the General Staff was conditioned by the change in the nature of armed struggle, the latter’s fast-moving character and dynamic employment of military and nonmilitary means coordinated according to time, place, direction, forces, means, and resources.<sup>44</sup>

**Forecasting, COF, forms and methods:** the design of an efficient armed forces contingent in Russia depends, in large degree, on finding an optimal COFM of armed struggle; another important task is the forecasting and assessment of military threats; the creation of a comprehensive theory of indirect and asymmetric actions conducted by various federal executive organs is required, while another task of military science is the development of forms of employing force groupings and methods of their operations, and determination of their optimal composition.<sup>45</sup>

**Future war weapons:** new models of weapons, such as robotic systems, a future telecommunications infrastructure, the development of strategic deterrence forces, and an aerospace defense system, must be created.<sup>46</sup>

**Nature of armed struggle:** the reduction of a state’s military–economic potential by destroying vitally important objects of infrastructure; simultaneous effects to the entire depth of enemy territory, in all physical media and in the information domain; doing command and control in a uniform information domain; employing precision weapons; the large-scale use of special operations forces, robotic systems, UAVs, and weapons based on new physical principles in mass; use of asymmetric and indirect operations and military operations by peacetime force groupings; conduct of high-maneuver, noncontact combat operations by interservice force groupings; and use of the civil-military component.<sup>47</sup>

**Forms and methods of armed struggle:** studied by the General Staff’s Center for Military and Strategic Studies; 27 central science and research institutions looking at command, control, and communications systems; 46 central science and research institutions examining the development of weapon systems; 18 central science and research institutions, as well as the Center for the Study of the Military Potential of Foreign Countries, are examining intelligence issues; and 25 central science and research institutions and the Main Science and Methodological Center are studying logistics.<sup>48</sup>

#### *2015-New Forms of Confrontation*

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<sup>43</sup> Ibid.

<sup>44</sup> V. V. Gerasimov, “The Role of the General Staff in the Organization of the Country’s Defense in Accordance with the New *Statue on the General Staff*, Approved by the President of the Russian Federation,” *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 1 2014, pp. 14-22.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

<sup>48</sup> Ibid.

**Forms and methods:** the West is using new forms of confrontation, combining military and nonmilitary resources; methods of political, economic, and information effects are being employed as well; Russia will counter with the further development of strategic nuclear forces, Spetnaz, and an increase in the potential of its force groupings on threatened axes, where it will utilize reconnaissance, fierce destruction assets, and the command and control of troops and weapons as priority improvements; Gosoboronzakaz's performance will be monitored by the Center for Defense Management; a system for covering the Arctic is being established to serve the interests of the development of the Northern Sea Route and the country's military security in the region, and in 2014 dual-designation ports (Dickson, Tiksi, and Pevek) were determined.<sup>49</sup>

### *2016-Hybrid War Requirements*

**Hybrid war:** Gerasimov discussed the threat from the West that hybrid war presents to the Russian Federation and what Russia intends to do about it; in contemporary conflict, "the emphasis on the methods of fighting moves toward the complex application of political, economic, information, and other nonmilitary means, carried out with the support of military force." These factors, he notes, are the so-called hybrid methods. To counter hybrid techniques two deterrence-type approaches are required. Internally the country's military and civilian assets must be mobilized to neutralize threats and counter or deter hybrid methods. Externally, Russia's cooperation with foreign countries and organizations such as the CSTO, SCO, and BRICS can help to deter foreign aggression through a demonstration of solidarity with other nations. Today, he notes, Russia must be prepared to protect state interests against an adversary's employment of both traditional and hybrid methods of confrontation.<sup>50</sup>

**Hybrid methods:** attain political goals with minimal armed impact through undermining an adversary's military and economic potential, exerting information-psychological pressure, actively supporting a domestic opposition, and using insurgency or subversive methods; principal means are "color revolutions," which are effectively coup d'états organized from the outside and based on technologies that manipulate a population's protest potential and other nonmilitary means, complemented by covert military means where force is used under the cover of peace-enforcement activities or crisis resolution; **hybrid aggression** results in conditions of chaos, domestic political crisis, and economic collapse; **hybrid trends** indicate that changes must be instituted in Russia's organization of defense, to include military and other organs of authority, as well as a set of military and nonmilitary measures to counter hybrid methods of pressure; Russia must focus on the primary constituents of hybrid methods, such as the falsifying of events and the imposition of restrictions on the activity of the mass media, to include countering foreign private military companies, subversive groups, and terrorist organizations.<sup>51</sup>

**Fears:** the ability of information technologies to manipulate protest in a country and the ability of the Internet to exert an impact on the consciousness of citizens requires Russia to orchestrate interagency activity to neutralize such impacts.<sup>52</sup>

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<sup>49</sup> V. V. Gerasimov, "New Forms of Confrontation Employed by Western Countries will be Considered when Developing Russia's Defense Plan," *Armeiskiy Sbornik (Army Journal)*, No. 3 2015.

<sup>50</sup> V. V. Gerasimov, "The Syrian Experience. Hybrid Warfare Requires High-Tech Weapons and Scientific Substantiation," *Military Industrial Courier Online*, 9-15 March 2016.

<sup>51</sup> Ibid.

<sup>52</sup> Ibid.

**Weapons:** information resources must be viewed as potential effective weapons that can be used against Russia.<sup>53</sup>

**Forms and methods:** Gerasimov requested the Academy of Military Science's assistance in helping to develop the forms and methods to counter hybrid threats; the scientific development of the forms and methods of applying joint institutional groups and sequences of military and nonmilitary actions must be considered for crisis situations; the Academy should focus on the new perspective vectors of military research, the evolution of the new forms of strategic activities of the Armed Forces, space and information warfare, and the development of requirements for the prospective armaments [author: methods] and command and control systems [author: form]. Of particular importance is the study of the nature of modern warfare and the problems of strategic deterrence, which means finding ways to deter **hybrid pressures** with nonnuclear means.<sup>54</sup>

**Commander of the Western Military District, Colonel-General A. V. Kartapalov (who was a Lieutenant-General at the time this article was published):**<sup>55</sup>

*2015-Military Conflict and How to Conduct It*

**U.S. use of direct and indirect operations:** the U.S. uses direct and indirect actions according to a specific scenario, which proceeds as follows: initially a victim state is chosen and irrefutable proof is provided of a threat in that state; an information campaign is developed that shows there is no alternative to the use of force, and later sanctions are introduced; coalitions are formed, political pressure is exerted against countries obstructing U.S. policies, and United Nations Security Council permission is sought to use military force;<sup>56</sup> to maintain its world hegemony, the U.S. has conducted "systemic" deterrence operations against Russia;<sup>57</sup> Russia calls such actions "indirect;" they consist of covert actions that ignite internal problems in an enemy state via a "third force" (described as blocs or countries, transnational companies, separate political forces, international extremist organizations, and so on, for whom war is beneficial). The third force acts from behind curtains, provokes conflicts, feeds a side with money, or hides behind "information pressure" (campaigns against human rights violations or the absence of democracy).<sup>58</sup>

**Use of information against Russia:** the development of an information confrontation campaign by an adversary is designed to disorganize Russia's national development, destroy its sovereignty, and help change a country's rulers; information effects are equivalent to the use of armed force in some cases; the "color revolution" information effect primarily uses the Internet to affect the consciousness of people; front lines are created along ethnic (or rich versus poor) confrontations

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<sup>53</sup> Ibid.

<sup>54</sup> Ibid.

<sup>55</sup> A. V. Kartapalov, "Lessons of Military Conflicts and Prospects for the Development of Means and Methods of Conducting Them, Direct and Indirect Actions in Contemporary International Conflicts," *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 2 2015, pp. 26-36.

<sup>56</sup> Ibid., p. 26.

<sup>57</sup> Ibid., p. 28.

<sup>58</sup> Ibid., p. 29.

and external incursions begin (foreign extremists and mercenaries, anti-government immigrant structures, private military companies, special operations forces, criminal bands, etc., appear).<sup>59</sup>

**Nature of armed conflict:** military actions now include conducting combat on land, sea, and air, and in space and information space; developing mid- and long-range hypersonic air- and sea-based guided missiles; improving algorithms and the technical basis of reconnaissance-strike systems; delivering precision, electronic, and information strikes against the most important targets and critical structures; and increasing the potential of intelligence, command and control, and destruction resources.<sup>60</sup>

**Asymmetric operations:** they are inherent to a conflict situation in which, by means of actions of an economic, diplomatic, information, and indirect military nature, a weaker enemy uses an asymmetric strategy (tactics) to conduct an armed struggle in accordance with his available limited resources to level the stronger side's military-technological superiority; a very important condition for conducting asymmetric operations is the precise determination of the enemy's most vulnerable and weakest areas, action against which will provide the maximum effect with minimal expenditure of one's own forces and resources.<sup>61</sup>

**Hybrid operations:** in past decades the US and its allies have employed military force more than 50 times; the trend where their goal is not the physical destruction of the enemy or state infrastructure, but the leadership's subordination to their will is being increasingly more manifest in contemporary conflicts, achieved through various technologies and effects; increasingly their foundation is nonstandard or "hybrid actions," to include measures of both a military nature and without the use military force; in the last 20 years the US and other leading NATO countries have actively introduced "hybrid methods" to achieve military-strategic goals.<sup>62</sup>

**Principles of asymmetric operations:** these include covertness of preparations for the conduct of operations; persuasion of the weak side to use prohibited means to conduct military operations; concentration of efforts against the enemy's most vulnerable locations (targets); search for and exposure of the enemy's weak points; imposition on the enemy of one's own variant (one's own will) for the course of the conflict; and expenditure of few resources with respect to enemy actions; the goal is to achieve superiority or parity with results.<sup>63</sup>

**Russia's new-type warfare:** nonstandard forms and methods are being developed. Russia's new-type warfare includes "asymmetric" methods for confronting an enemy; measures include the use of special forces, foreign agents, various forms of information effects, and other nonmilitary forms; for each conflict a different setoff asymmetric operation will be created.<sup>64</sup> (See new-type war diagram on next page)

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<sup>59</sup> Ibid., p. 30.

<sup>60</sup> Ibid., p. 34.

<sup>61</sup> Ibid., p. 35.

<sup>62</sup> Ibid., p. 29.

<sup>63</sup> Ibid., p. 35.

<sup>64</sup> Ibid., pp. 35-36.

# Methods and Ways of Conducting a New-Type of War

Achieving Goals in New-Type Warfare in Combination with the Employment of Military Force or without it.  
Set of Indirect Actions ("Hybrid Methods")

Pressuring the Enemy Politically,  
Economically, Informationally,  
and Psychologically

Disorienting the Political and  
Military Leadership of the State-  
Victim. Spreading Dissatisfaction  
among the Population

Preparing Armed Opposition  
Detachments and Sending Them  
to the Conflict Region

Intensifying Diplomatic Pressure and Propaganda to the World Community

Covertly Deploying and Employing Special Operations Forces, Cyber Attacks and Software Effects,  
Conducting Reconnaissance and Subversive Acts on a Large Scale, Supporting the Internal Opposition,  
and Employing New Weapon Systems

Shifting to Classical Methods of Waging War, Using Various Types of Weapons  
in Combination with Large-Scale Information Effects

Seizing Enemy Territory with the Simultaneous  
Action against (destruction of) Forces and Targets to  
the Entire Depth of His Territory

Employing Precision Weapons on a Large Scale,  
Extensively Using Special Operations Forces, Robotic  
Complexes, and Weapons Based on NPP

Liquidating Centers of Resistance with the Help of Artillery and Air Strikes, Delivering Precision Weapons Strikes,  
and Landing of Assault Forces. Clearing Out the Territory using Ground Forces.  
Establishing Full Control over the State-Victim.

**Group Two: Colonel (retired) S. G. Chekinov and Lieutenant General (retired) S. A. Bogdanov (except the 2009 article, which was written by Bogdanov and V. N. Gorbunov):**

*2009-Character of Armed Confrontations*

**Nature of future war:** this is still not known, since a new world order and security system model have not been completed and an ongoing fight for spheres of influence, regional domination, and natural resources continues; the final impact of information technologies on warfare is also unknown.<sup>65</sup>

**Future war factors:** greater use of artificial intelligence, nanotechnology, robot-controlled, and new physical principle weaponry, some comparable to the efficiency of nuclear weapons; aerospace role will grow significantly, where even the **planet may be a theater of operations**; the information component of war will increase and information superiority is required for successful military operations; operations will be carried out faster; automated global network systems will control troops and weapons; use of special forces will rise.<sup>66</sup>

**Nonmilitary forms of armed struggle:** the weakening of states is occurring through the use of information, psychological, moral, climatic (causing natural disasters, etc.), and organizational measures; setting up an opposition and fomenting ethnic strife weakens the external position of a state by ruining its international relations through political, economic, legal, information, and other means;<sup>67</sup> psychotronic, biological, and genetic weapons are being developed that do not rely on explosive power.<sup>68</sup>

**IPW:** the main objectives of future wars will be achieved in the opening phase and that will become the turning point of the war;<sup>69</sup> it will include the destruction of military and government control centers, the disruption of the system for controlling a country, and the targeting of the military-industrial infrastructure; it also includes air, fire, and electronic attacks, followed by paratroopers, special forces, and then land forces in the final stage; it was noted that the nuclear deterrent could be used against an opponent who has attacked using conventional weapons.<sup>70</sup>

*2010-Asymmetric Actions*

**Definition of asymmetric operations:** a weak adversary's strategy to combat a strong adversary. Such operations employed in guerrilla warfare included the unpredictability of the outcome of engagements, even in the face of the clear incommensurability of the sides' COF; probing for the strong side's weaknesses; indirect military operations; and the inability of the strong side to defend positions or suppress a weak adversary.<sup>71</sup> Asymmetric operations are characterized by qualitative

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<sup>65</sup> S. A. Bogdanov and V. N. Gorbunov, "On the Character of Armed Confrontation in the Twenty-First Century," *Voennaya Mysl' (Military Thought)*, No. 3 2009, pp. 2, 11.

<sup>66</sup> *Ibid.*, pp. 5-6.

<sup>67</sup> *Ibid.*, p. 8.

<sup>68</sup> *Ibid.*, p. 7.

<sup>69</sup> *Ibid.*, p. 13.

<sup>70</sup> *Ibid.*, pp. 13-14.

<sup>71</sup> S. G. Chekinov and S. A. Bogdanov, "Asymmetric Actions in Support of the Military Security of Russia," *Voennaya Mysl' (Military Thought)*, No. 3 2010, p. 16.



differences in employing new (nontraditional) means of armed struggle and forms and methods of waging it, yet are close in content to the strategy of indirect operations.<sup>72</sup>

**Nonmilitary:** the risk of catastrophic consequences from the use of advanced weaponry presupposes that more nonmilitary measures, to include political, economic, information and other means, should be used to resolve conflict;<sup>73</sup> at times it is not coercive potential that achieves success, but the interaction of military and nonmilitary (political, psychological, ideological, and informational components) factors.<sup>74</sup>

**Confront asymmetric opponents:** employ numerically small, specially trained contingents of troops; conduct preventive operations and make use of covert agent intelligence; explain work among the local population; switch to nonmilitary ways of exerting pressure on a weak adversary; and rely on indirect and nonmilitary operations.<sup>75</sup>

**Indirect operations:** the strategy of indirect operations is characterized by the multiplicity of forms and methods of operations employed, including the conduct of information and remote (noncontact) confrontations, the segmented use of fires and strikes (land, air, sea), and, in the not too distant future, antisatellite operations; the US uses this strategy now to neutralize adversaries without weapons, through information superiority.<sup>76</sup>

**Information influence:** information has been used to mislead, surprise, intimidate, or undermine leaders of an opposing force in the past, usually in tactical situations; contemporary conditions show that information influence (indirect operations) is now capable of strategic missions; strategic information confrontation can disorganize military and state command and control measures, dupe the adversary, create public opinion, organize antigovernment demonstrations, and lower the opposing sides resolve to resist.<sup>77</sup>

**Forms and methods:** Putin stated in 2006 that “we should not chase after quantitative indicators...our responses will have to be based on intellectual superiority. They will be asymmetrical, less costly;”<sup>78</sup> the asymmetric approach to ensuring military security is the sum total of the forms and methods of employing forces and assets, based on the sides’ non-identical capabilities and making it possible to avoid (diminish the consequences of) a confrontation or a direct armed clash with a potential adversary, to include implementing measures to induce apprehension, demonstrating readiness and capabilities, and operating to deter via the guaranteed engagement of the most vulnerable military assets of an opponent and other strategically important facilities (command and control agencies, major industrial enterprises, hazards [dams, water, nuclear power stations], and critically important communications facilities); deterrence can include threatening to use environmental and socio-political catastrophes as well.<sup>79</sup>

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<sup>72</sup> Ibid., pp. 19-20.

<sup>73</sup> Ibid., p. 15.

<sup>74</sup> Ibid., p. 17.

<sup>75</sup> Ibid., p. 18.

<sup>76</sup> Ibid., pp. 19-20.

<sup>77</sup> Ibid., p. 20.

<sup>78</sup> Ibid., pp. 20-21.

<sup>79</sup> Ibid., pp. 21-22.

### *2011-Strategy of the Indirect Approach*

**Indirect approach:** the authors' choice of future weapons includes information and psychological weapons, climate and organizational weapons, and nonmilitary weapons; the settlement of differences between states in contemporary times is based on the sum total of political, economic, scientific, technological, spiritual and cultural, informational, and humanitarian constituents working to integrate the country into a peaceful way of life; the re-division of territory and markets is now being achieved through the indirect approach and the employment of nonmilitary means, as well as political, economic, information, and climatic measures; nonmilitary means show affinity for the concept of the indirect approach or indirect strategy;<sup>80</sup> [note: in their article on asymmetric operations, the same authors wrote that "asymmetric approaches and operations are close in terms of content to the strategy of indirect operations."<sup>81</sup> Thus these authors make you believe that the indirect, asymmetric, and nonmilitary approaches are actually quite close to one another in meaning]; "given the current reality, it appears expedient for Russia to map out and eventually implement a strategy of indirect approach as its state strategy without an alternative."<sup>82</sup>

**Importance of information:** it was noted in 2011 that information can tackle strategic tasks and that strategic information confrontations are used to disorganize an opponent, deceive him, create a desired public opinion, organize antigovernment protests, and other matters;<sup>83</sup> information technologies can affect individuals and the mass consciousness of a nation or the systems of government and military control; without information security a state can lose its political sovereignty, economic independence, and role as a world leader.<sup>84</sup>

**West's approach uses the organizational weapon and climate weapons:** Western civilization devised a unique indirect approach, the so-called "organizational weapon," which allowed them to win the "cold psycho-information war;" it became known as the cognitive information phase of organizational weaponry, and was defined by S. Chernyshev in the following manner: the organizational weapon is the employment of systems designed to eliminate a certain society, organization, company, or family (the mission does not have to be on a global scale);<sup>85</sup> Chekinov and Bogdanov noted that metaprogramming involved "Installing program filters that force the client to perceive the world in a way desired by the programmers [note: this explanation is very close to the understanding of reflexive control theory];"<sup>86</sup> this is stated to be a controllable cell of the global web, also called a thinking web, where examples of its use include color revolutions;<sup>87</sup> the main target of climate weapons such as the US's High Frequency Active Auroral Research Program (HAARP), is to study disturbances in the Earth's ionosphere and magnetosphere; some Russians, however, believe HAARP can manipulate weather and cause earthquakes, tsunamis, floods, tornados, droughts, and magnetic storms affecting navigation systems and humans.<sup>88</sup>

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<sup>80</sup> S. G. Chekinov and S. A. Bogdanov, "The Strategy of the Indirect Approach: Its Impact on Modern Warfare," *Voennaya Mysl' (Military Thought)*, No. 6 2011, p. 4.

<sup>81</sup> "Asymmetric Actions..." pp. 19-20.

<sup>82</sup> "Indirect Approach..." p. 13.

<sup>83</sup> *Ibid.*, p. 6.

<sup>84</sup> *Ibid.*, p. 9.

<sup>85</sup> *Ibid.*, p. 10.

<sup>86</sup> *Ibid.*, p. 11.

<sup>87</sup> *Ibid.*, p. 11.

<sup>88</sup> *Ibid.*

**Definition of nonmilitary means of confrontation:** a sum of state, social institutions (organizations), political, legal, and economic standards, spiritual values, general-purpose information, and technological systems used by a state to impact internal and external relations between countries in order to localize or settle armed conflicts and local wars in present day conditions;<sup>89</sup> nonmilitary means increase the certainty of fulfillment of defense tasks in wartime, ensure the country's peaceful development when war ends, lessen and eliminate military dangers and threats with treaties or other measures, curb the aggressor's hostile actions against others; give an aggressor a negative public image, and encourage the unmasking of aggressor plans<sup>90</sup>

#### *2012-Initial Period of War*

**Definition of the IPW:** IPW can come into play when a conflict is induced by natural resource depletion, the shrinkage of economies, rising demographic and ethno-political tensions in some countries, or widening gaps in economic development and living standards; the IPW was defined as when warring states "conduct military operations involving groups of their armed forces that were deployed before the start of the war to achieve their short-range strategic objectives or to create favorable conditions for committing their main forces and continuing with more operations;"<sup>91</sup> the IPW has new political, economic, and military conditions that are changing its parameters, which accords with history's lessons that each war appears as a special case with different factors affecting the IPW;<sup>92</sup> the projected speed of future wars may not allow countries time to put their economies on a war footing, making it even more important to prevent potential adversaries from achieving military and technological superiority [note: there appear to be three phases to an IPW plan: commit forces in secret before war begins; create conditions for the main force; and be aware that new conditions will continuously change the initial parameters].<sup>93</sup>

**IPW responses and forms and methods:** the warring sides must build up their forces in advance and deploy them in secret in order to be prepared to achieve the war's main goals; new technologies and concepts, such as network-centric operations, play a significant role in the forms and methods of future conflict;<sup>94</sup> these technologies include capabilities in outer space and cyberspace, information warfare, and weapons based on new physical principles (beam, geophysical, wave, genetic, and psychophysical);<sup>95</sup> the goals of IPW will be attained through the employment of military, economic, and information technology measures in combination with efficient psychological information.<sup>96</sup>

**New-generation wars (NGW) mentioned:** NGW, mentioned here for the first time by Chekinov and Bogdanov, will be fought with fire strikes, electronic strikes, robot-controlled warfare, aerospace and mobile aerial operations, air assaults, information reconnaissance strikes, anti-reconnaissance and similar operations, and combat and other actions;<sup>97</sup> states will try to resolve

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<sup>89</sup> Ibid., p. 13.

<sup>90</sup> Ibid.

<sup>91</sup> S. G. Chekinov and S. A. Bogdanov, "Initial Periods of War and Their Impact on a Country's Preparations for a Future War," *Voennaya Mysl' (Military Thought)*, No. 11 2012, pp. 14-27.

<sup>92</sup> Ibid., p. 17.

<sup>93</sup> Ibid., p. 18.

<sup>94</sup> Ibid., p. 19.

<sup>95</sup> Ibid.

<sup>96</sup> Ibid.

<sup>97</sup> Ibid., p. 23.

their problems in interstate relations by using every kind of deterrence—by force or peacefully, or by nonmilitary and indirect (asymmetrical) actions;<sup>98</sup> deterring an aggressor by force can be done in a number of ways, such as direct threats of attack or powerful defensive deployments; ultimatums that caution that Russia would (in the event of war) use nuclear weapons; or the planning and conduct of information campaigns that mislead adversaries about Russia’s readiness to counter aggression;<sup>99</sup> the IPW of NGW may determine a war’s outcome if forces seize or destroy key control centers, disrupt an opponent’s governmental and armed forces operating procedures, or enable attackers to control operations; operations will attempt to disorganize, demoralize, and paralyze opponents; the length of IPW depends, first and foremost, on an attacker’s end goals, perhaps lasting between four and six weeks; subversion and provocations will be used against a country’s military and political leadership.<sup>100</sup>

**Special information campaigns:** broadcasts, the mobilization of reservists, the relocation of army units, and the deployment of reserves from the heartland to influence adversaries must be accomplished, backed up by false activities that are produced such that adversary reconnaissance units will intercept them and think they are real;<sup>101</sup> mass media can be used to stir up chaos and confusion in government and military management or command and control; the media can instill ideas of violence, treachery, and immorality in another nation to demoralize the public [note: this appeared to be a Russian action vector in Ukraine];<sup>102</sup> the danger associated with the mass media means that it must be kept under government control; national information sources must be kept from adversarial influence.

**Definition of a technological information attack:** a technological information attack can be launched against the hardware and software core of the adversary’s information and telecommunications environment (cyberspace), to damage it and protect friendly control systems against similar attacks. A psychological information attack is directed against information exchange in cyber-space in a bid to achieve information superiority and cause damage to the adversary.<sup>103</sup> Attaining information superiority is thus a priority if strategic objectives are to be achieved in NGW, and can be an IPW priority, to be followed by conventional weapons.<sup>104</sup>

### *2013-New-Generation War*

**NGW:** NGW is based on nonmilitary options, mobile joint forces, and new information technologies; it is forecasted to radically alter the character and content of armed struggle, based on intensive fire strikes against seats of national and military power and military and industrial objectives, and the employment of military space-based systems, EW forces and weapons, electromagnetic, information, infrasound, and psychotronic effects, and corrosive chemical and biological formulations, along with nontraditional forms that cause earthquakes, typhoons, and heavy rainfall, with the potential to damage the economy or aggravate the socio-psychological

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<sup>98</sup> Ibid., p. 26.

<sup>99</sup> Ibid., p. 19.

<sup>100</sup> Ibid., p. 25.

<sup>101</sup> Ibid.

<sup>102</sup> Ibid., p. 27.

<sup>103</sup> Ibid., p. 25.

<sup>104</sup> Ibid., p. 24.

climate;<sup>105</sup> new forms and methods of employing joint forces in operations and engagements will evolve.<sup>106</sup>

**Information component of NGW:** NGW should be dominated by information; thus psychological warfare and asymmetric actions will be used extensively (in the form of indirect actions and nonmilitary measures). NGW will be fought “by the rules and customs of the side that is best prepared to put the recent breakthroughs in warfare economics and technologies to a practical test.”<sup>107</sup>

**Seven NGW characteristics:** information superiority and anticipatory operations will be the main ingredients for success in new-generation wars;<sup>108</sup> characteristics 1-3 are information, social media, and nonlethal- or bio- or color-revolution related; characteristics 4-6 are reconnaissance-, aerospace-, and robot-related, and characteristic 7 is related to the importance of the IPW; first, the aggressive side would use nonmilitary actions, such as a distributed attack designed to strike at a country’s social system via a disinformation campaign, to conceal the commencement date and scale of operations, which requires the attainment of information superiority;<sup>109</sup> second, decisive information environment battles include the attacker manipulating “intelligent machines” at a distance, such as a quantum computer that can operate in the nanosecond range, employing speed and synchronization to decide success or failure set up by information, moral, psychological, ideological, and other measures months earlier,<sup>110</sup> with heavy propaganda designed to spark discontent among the defender’s population, armed forces personnel, and the current government agencies’ activities;<sup>111</sup> third, an aggressor may use nonlethal, new-generation, genetically engineered biological weapons that affect the human psyche and moods or he may use undercover agents to encourage discontent and unlawful acts;<sup>112</sup> fourth, the military phase will be preceded by large-scale reconnaissance and subversive missions, conducted under the guise of information operations used to target important objectives vital to the country’s sustainability;<sup>113</sup> fifth, the attack begins with an aerospace operation lasting several days to damage an opponent’s key military and industrial capabilities, communication hubs, and military control centers or to disorganize a defender’s air force and air defense system;<sup>114</sup> sixth, the use of military robots and UAVs is anticipated, with each capable of engaging in combat independently and used to collect intelligence and reconnaissance data; ground forces are deployed after political and military goals are achieved;<sup>115</sup> and seventh, and most important, the opening period of an NGW will be pivotal, with targeted information operations, EW operations, aerospace operations, precision weaponry, long-range artillery, and weapons based on new physical principles dominating the phasing of the operation.<sup>116</sup>

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<sup>105</sup> S. G. Chekinov and S. A. Bogdanov, “The Nature and Content of a New–Generation War,” *Voennaya Mysl’ (Military Thought)*, No. 10 2013, pp. 13-25.

<sup>106</sup> *Ibid.*, p. 17.

<sup>107</sup> *Ibid.*, pp. 17-18.

<sup>108</sup> *Ibid.*

<sup>109</sup> *Ibid.*, p. 19.

<sup>110</sup> *Ibid.*, p. 20.

<sup>111</sup> *Ibid.*, p. 20.

<sup>112</sup> *Ibid.*, 21.

<sup>113</sup> *Ibid.*

<sup>114</sup> *Ibid.*

<sup>115</sup> *Ibid.*, 22.

<sup>116</sup> *Ibid.*, 23.

### *2014-Military Futurology*

**Definition of military futurology, use of the COF:** futurology is an “area of scientific knowledge aiming at prevision of the future development of humankind and various spheres of society’s existence,”<sup>117</sup> a philosophical prognostication science of the future;<sup>118</sup> Putin wants to develop the capability to look 30-50 years beyond the horizon and develop a “new intelligent system of military analysis and strategic planning...;”<sup>119</sup> long-term, large-scale prognostication of military processes should be the job of a specialized branch of military science, i.e., military futurology;<sup>120</sup> innovations in knowledge-intensive technologies must be taken into consideration, along with changes in the forms and methods of fighting; by the end of the 20<sup>th</sup> century prognostication was a branch of military science, with over 150 methods worked out, and an improved version of the COF is now used in various calculations of the RF MOD research organizations.<sup>121</sup>

**Types of forecasting/prognosis:** two types are exploratory and normative prognoses; exploratory prognoses, the best developed in the military sphere, define trends, directions, and regularities in military processes; however, the precision of foresight is inversely proportional to the lapsed time period squared, and, therefore, is full of miscalculation;<sup>122</sup> normative prognosis includes mathematical modeling methods, systems analysis, operational research methods, objective trees, theoretical graphs, and network methods, where the scientific cognition is modeling (defined as a mental transfer of phenomena into the future and their reproduction in the form of plausible action scenarios).<sup>123</sup>

### *2015-Art of War*

**Forms and methods:** the types and methods of armed struggle imply a more “active employment of nonmilitary measures and indirect actions in interstate confrontation;”<sup>124</sup> supporting the development of these measures and actions are the forms and methods of preparing and conducting warfare, which the authors believe are the most important tasks of military art;<sup>125</sup> indirect actions display a great diversity of forms and methods of nonmilitary measures and nonviolent actions, especially in information and remote (noncontact) confrontation;<sup>126</sup> military art, the theory of preparing and conducting armed struggle on land, sea, and space, encompasses organizing, conducting, and supporting operations and actions.<sup>127</sup>

**Threats from the US:** specific US threats to Russia are the global strike strategic-operational concept, the network-centric concept, weapons based on new physical principles, globally

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<sup>117</sup> S. G. Chekinov and S. A. Bogdanov, “Military Futurology: Its Origin, Development, Role, and Place within Military Science,” *Voennaya Mysl’ (Military Thought)*, No. 8 2014, pp. 19-29.

<sup>118</sup> *Ibid.*, p. 29.

<sup>119</sup> *Ibid.*, p. 19.

<sup>120</sup> *Ibid.*, p. 20.

<sup>121</sup> *Ibid.*, p. 26.

<sup>122</sup> *Ibid.*, pp. 26-27.

<sup>123</sup> *Ibid.*, pp. 27-28.

<sup>124</sup> S. G. Chekinov and S. A. Bogdanov, “The Art of War at the Beginning of the 21<sup>st</sup> Century: Problems and Opinions,” *Voennaya Mysl’ (Military Thought)*, Vol. 1 2015, p. 34.

<sup>125</sup> *Ibid.*, p. 36.

<sup>126</sup> *Ibid.*, p. 37.

<sup>127</sup> *Ibid.*, p. 33.

integrated operations, and the roles of outer space and cyberspace;<sup>128</sup> it was noted that advanced combat action forms will include operations by mobile inter-service groupings active within the unified reconnaissance and information space that employ qualitatively new systems of command, control, and support, with threats neutered with advanced information technologies that reduce spatial, temporal, and information gaps between troops (forces) and facilities in operations and among bodies of command and control of unified groupings; remote noncontact impact on the adversary will be the chief method of attaining the objectives of combat actions and operations, obliterating differences among strategic, operational, and tactical levels and between offensive and defensive activities.<sup>129</sup>

**What Russia must do:** start researching the use of nonmilitary measures and indirect actions. The former is the sum of measures in a state's internal and external policies in lieu of or on top of employing military force. The latter are reflected in improved methods of asymmetric, information, and unorthodox activities, using, for example, surprise and the time factor to advantage;<sup>130</sup> with regard to surprise, the authors note that ruses in warfare "were seen as a rational and necessary device, and acted as a coefficient of increasing the force and might of attacks. Refusing to employ cunning in war, conversely, undermined one's own strength;"<sup>131</sup> twenty-first century military art will have different forms and methods of struggle where nonmilitary and indirect actions will dominate, with stratagems and surprise helping in their application.<sup>132</sup>

#### *2015-Future War Forecasting*

**Definition of forecasting:** forecasting is viewed as an instrument that helps avoid errors in identifying the principal avenues for promoting military art, avoiding paths that lead nowhere, and cutting the costs of maintaining military security;<sup>133</sup> military science must use this methodology to validate the substance and nature of future wars and even to develop strategy; Russia must look for new forms and methods of using violent and nonviolent measures and indirect moves to protect its national interests; Svechin [note: the famous Russian military theorist of the 1920s who wrote often on strategy] said one cannot stick to entrenched stereotypes if one wants to make strategic forecasts of the nature and substance of future wars.<sup>134</sup>

**Nature of future war, forms and methods:** the nature and substance of future wars will be changed radically by: space-based attack weapons; orbiting battle space stations; new weapons of improved destructive power, range, accuracy, and rate of fire; greater capabilities of reconnaissance and robot-controlled assets; automated weapons control; communication; and information warfare systems. Forecasts of future wars require a skillful combination of military, nonmilitary, and special nonviolent measures, using a variety of forms and methods and a blend of political, economic, information, technological, and environmental measures, primarily by taking advantage of information superiority.<sup>135</sup>

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<sup>128</sup> Ibid., p. 38.

<sup>129</sup> Ibid., p. 39.

<sup>130</sup> Ibid., p. 42.

<sup>131</sup> Ibid.

<sup>132</sup> Ibid., p. 43.

<sup>133</sup> S. G. Chekinov and S. A. Bogdanov, "A Forecast of Future Wars: Meditation on What They Will Look Like," *Voennaya Mysl' (Military Thought)*, No. 10, 2015, pp. 41-49.

<sup>134</sup> Ibid.

<sup>135</sup> Ibid., p. 44.

**Information war:** it is the start point of every action in a “new type of warfare (a hybrid war),” in which broad use is made of the mass media and computer networks (blogs, social sites, etc.); new information techniques, operating in the nanosecond format, are the decisive factor for military success, and are based on new technologies that are key components of information weapons, capable of paralyzing computer systems controlling troops and weapons and depriving the enemy of information transmission functions; computers may become strategic weapons in future wars;<sup>136</sup> information and psychological warfare come in all forms and methods; future wars will be launched by EW forces, which protect friendly forces, block foreign propaganda disinformation, and strike at enemy EW forces and assets; they blend with strategic operations of the armed forces and with aerospace operations, augmented by cruise missiles, and reconnaissance “outfits (UAVs, robots),” delivering strikes and fires; strategic goals in future wars require that information superiority over the enemy is assured; Russia should look out for new-type wars (hybrid), including those actions to influence the behavior of the Armed Forces of Russia or to instigate internal tensions in society.<sup>137</sup>

**Forms and methods:** developing doctrine requires insights into the forms and methods of violent and nonmilitary actions, which are required before reforms, military economies, and infrastructures can be upgraded; military science must be able to handle the transformation of views on the nature of threats, changes in the forms and methods of the conduct of wars by joint and cross-service task forces and the laws of warfare, and new areas of military art’s development;<sup>138</sup> nuclear weapons will have reduced significance, and strategic operations may become the principal form of fulfilling strategic tasks; forecasting shows that future wars will have opening (about a month) and closing (as short as possible) periods; forecasts of the geostrategic situation are made and linkages assessed between warfare that employs the use of arms or nonviolent and nonmilitary measures.<sup>139</sup>

### **Group Three: Retired Major General I. N. Vorobyov and retired Colonel V. A. Kiselev**

#### *2006-Indirect Strategy*

**Strategy of the indirect approach:** military art is at a level where deeper views are needed on methods of conducting operations, engagements, and battles according to the principle of the dialectic continuity of experience that is accumulated from the past; the strategy of the indirect approach (SIA) is taking precedence over a strategy of force as a key to success; the SIA is characterized by a diversity in the forms and methods of military action, which include information warfare, stand-off warfare, segmented polycentric and EW strikes, ground and naval, air and space, and anti-satellite operations; the US uses this type of asymmetric strategy today;<sup>140</sup> information’s impact today can address strategic tasks. It was highlighted that “military command now has

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<sup>136</sup>Ibid.

<sup>137</sup> Ibid., p. 45.

<sup>138</sup> Ibid., p. 48.

<sup>139</sup> Ibid., p. 47.

<sup>140</sup> I. N. Vorobyov and V. A. Kiselev, “The New Strategy of the Indirect Approach,” *Military Thought*, Vol. 4 2006 of the Eastview publication *Military Thought: A Russian Journal of Military Theory and Strategy*, pp. 30-31 (in English).



information-psychological weapons, i.e., special weapons based on the use of destructive information-psychological and information-suppressing impact on the human psyche to direct or suppress human behavior and activity;”<sup>141</sup> included in such weaponry are the mass media, energy-information-psychological weapons, psychotropic-information, bioenergetics-information, information-energy, virtual information-psychological weapons, somatropic-psychological-information weapons, and computer telecommunication networks; these weapons would be employed with other strike and EW assets (new weapon types), and new tactical methods along with the use of deception and stratagems;<sup>142</sup> commanders have always tried to control an adversary’s conduct on the psychological (reflexive) level by using military stratagems (decoys, feints, etc.); in World War II the “reflexive control of the enemy’s conduct was achieved by implementing an array of measure and activities, interconnected by goal, place, and time and designed to foil the adversary’s plans...”<sup>143</sup>

#### *2014-Indirect Warfare in Cyberspace*

**Cyberspace and indirect warfare:** a cyber-security plan must draw upon the strategy of asymmetric actions; included in this approach are the following points: replacing monotony and stereotypes with multiple functions; combining centralization and decentralization instead of rigid hierarchy in command and control; using joint efforts rather than each unit for itself; using symmetry in place of asymmetry and asymmetry in place of symmetry; using alternatives instead of set-course actions; preempting against go-slow or wait-and-see attitudes; using modules instead of open-ended formations; using multipolarity in place of monopolarity; and using multiplicity instead of singularity.<sup>144</sup> Fire strike maneuver in cyberspace is performed, based on mobility and surprise; Russia needs to prevent an adversary’s maneuver by concentrating firepower and then relocating it, concentrating and building up efforts and then shifting them to another location at the right moment, performing EW and air defense maneuvers, and using one’s own software-hardware to destroy an adversary’s computer networks; new types of weapons include cyber weapons, ultrahigh-frequency weapons, directed energy weapons, and others, as present-day warfare is a competition involving intelligence, information and reconnaissance gathering, and navigational abilities.<sup>145</sup>

### **Group Four: Numerous Authors (some Military, some Civilian), Each Listed Next to the Date of Publication**

*2005-Character of Future War* (Colonel P. A. Dulnev and Colonel [retired] E. A. Bryuzgin)

**Asymmetric wars:** wars are now asymmetrical, that is, fought by adversaries with different technologies and different stages of development of their armed forces in terms of weapons, forms, and methods of fighting.<sup>146</sup>

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<sup>141</sup> Ibid., p. 31.

<sup>142</sup> Ibid.

<sup>143</sup> Ibid., p. 34.

<sup>144</sup> I. N. Vorobyov and V. A. Kiselev, “Indirect Warfare in Cyberspace,” *Voennaya Mysl’ (Military Thought)*, No. 12 2014, pp. 21-28.

<sup>145</sup> Ibid.

<sup>146</sup> P. A. Dulnev and E. A. Bryuzgin, “The Probable Character of Future Warfare,” *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 2, 2005, pp. 126-127.

*2008-Three Painful Calluses for the US* (Vladimir Kozhemyakin)

**Asymmetric responses:** several responses were proposed to counter Western geopolitical advances, suggested as counters to battlefield operations: get Cuba back as an ally; develop a friendship with another Latin American country, such as Nicaragua; establish a support port for the Russian Navy in Syria; continue to support Iran; reestablish Russia's links with all nations of the Caucasus; and form up once again the Mediterranean Sea Operational Squadron.<sup>147</sup>

*2009-Nonmilitary Measures* (V. I. Lutovinov)

**Definition of nonmilitary operations and geopolitical conditioning:** the “significance and weight of nonmilitary measures in confrontations between countries have grown considerably;”<sup>148</sup> nonmilitary measures are “a combination of purposeful, specific moves in domestic and foreign policies exercised by the state in situations when efforts in actions related to military policy are to be supplemented or superseded;”<sup>149</sup> nonmilitary measures include diplomatic and economic measures, legal, information, and psychological means, information technologies, humanitarian and spiritual/moral measures, and public defense; nonmilitary measures can be used to prepare and launch wars, erode military power, destroy military systems, and defeat victims of aggression; the tasks of diplomatic nonmilitary efforts are to maintain stability in the world, prevent hotbeds of tension near Russian territory, maintain normal relations with all countries, build up peacekeeping capabilities, utilize the disarmament process to reduce the armed forces of neighboring regions, and enter into agreements with neighboring states;<sup>150</sup> nonmilitary measures assist in the geopolitical conditioning of the world around Russia in case armed force is required; it prepares the battlefield through the potential disorganization of the control aspect of an opponent's military and political leadership.

*2011-Warfare Today and Tomorrow* (Ye. O. Novozhilova)

**Androids, cyborgs, bioweapons:** the complex natural and artificial environment, along with cyberspace, will soon become commonplace arenas for warfare; a computer operator controlling “intelligent” machines may be the chief protagonist on the battlefield; protracted war is seeding ground to instant war, where speed, synchronization, and simultaneity are becoming war's new decisive factors; there is a real need to keep quantum computing out of the hands of a hacker or terrorist who can access any network associated with a critical infrastructure; autonomous robots able to adjust to the environment they are in and fight on their own are a worry;<sup>151</sup> androids and cyborgs could become super-soldiers, since progress in genetic engineering and advances in information technologies inspire hopes that a bio-chemical imitation of man is a viable proposition; the robot-cyborg-android chain reflects the general trajectory of contemporary development;<sup>152</sup> biology is replacing physics and chemistry as a class associated with the means of armed struggle; these weapons of a new-generation [note: first mention in 2011] can ensure desired results with

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<sup>147</sup> Vladimir Kozhemyakin, “Caribbean, Iran, and the Caucasus—Three Painful Calluses for the US,” *Argumenty i Fakty (Arguments and Facts)*, No. 38, 17 September 2008, p. 9 as downloaded from Eastview.com on 18 March 2010.

<sup>148</sup> V. I. Lutovinov, “The Development and Use of Nonmilitary Measures to Reinforce the Military Security of the Russian Federation,” *Voyennaya Mysl' (Military Thought)*, No. 5 2009, p. 3.

<sup>149</sup> Ibid.

<sup>150</sup> Ibid., p. 6.

<sup>151</sup> Ye. O. Novozhilova, “Warfare Today and Tomorrow,” *Voennaya Mysl' (Military Thought)*, No. 2 2011, pp. 3-12.

<sup>152</sup> Ibid., p. 9.

limited expenditures; they have properties that can be used as weapons of mass destruction or as nonlethal means, capable of affecting the mental health and willpower of humans and becoming an anti-war instrument in that regard; this type of weaponry can be used against crops and animals as well, of course, used to destroy a food base or serve as a virus carrier in the case of animals; Novoshilova then questions whether this will set off a biological arms race.<sup>153</sup>

*2012-Technosphere Warfare* (Yu. I. Starodubtsev, V. V. Bukharin, and S. S. Semyonov)

**Definition of technosphere warfare:** “it is not always economical to employ an armed force that can only be committed when a conflict reaches an extreme.” It is better “to achieve war goals by attacking the adversary’s automated control systems (ACS);” this elicits the need for “a concept of an entirely new type of warfare—warfare in an artificial environment—to be added to the theory of military art;”<sup>154</sup> technospheric warfare (TSW) is “a system of information activities coordinated in purpose, place, and time and directed at seizing control (partial or complete) over selected automated control systems of an adversary or setting them on a destructive course while they go on operating;”<sup>155</sup> TSW is a form of conflict in which the targets attacked (protected) and attack (protection) capabilities are information existing within the single worldwide telecommunications environment (SWTCE); in this context, information is more than data transmitted through (stored in) SWTCE: it is also information about the status of SWTCE (or its parts) and that of the ACS of the system attacked and their operating algorithms;<sup>156</sup> TSW allows for seizing an adversary’s information resources, changing the adversary’s ACS to a mode meeting the attacker’s interests, terminating ACS operations or destroying the ACS, and modifying the SWTCE’s characteristics;<sup>157</sup> state borders and frontlines no longer apply; and people without military training can plan operations.<sup>158</sup>

*2012-Character of Armed Struggles* (S. V. Kuralenko)

**Changing trends in armed struggles, COF:** in the 21<sup>st</sup> century there are three significant trends in the “nature of armed struggle.”<sup>159</sup> First is the shift toward aerospace (longer range, greater power and accuracy, possibility of consecutive and simultaneous attacks across the entire theater of operations by piloted and pilotless aerial vehicles);<sup>160</sup> this requires a four-to-eight-fold superiority of the attacker’s air force over an adversary’s defense<sup>161</sup> [a COF assessment]. Second is the move from positional confrontations to the evolution of exchanging fire from a distance (precision guided munitions, etc.) with critical infrastructure (control, economic, and logistic systems) targeting priorities, along with air defense systems, airfields, and aircraft as key objects in the IPW; manpower is not a priority target.<sup>162</sup> Third is the role played by information superiority, special operations forces, and EW (to disorganize control); network-centric methods used to

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<sup>153</sup> Ibid., pp. 10-11.

<sup>154</sup> Yu. I. Starodubtsev, V. V. Bukharin, and S. S. Semyonov, “Technosphere Warfare,” *Voennaya Mysl’ (Military Thought)*, No. 7 2012, pp. 22-31.

<sup>155</sup> Ibid.

<sup>156</sup> Ibid.

<sup>157</sup> Ibid.

<sup>158</sup> Ibid.

<sup>159</sup> S. V. Kuralenko, “Tendencies in the Changing Character of Armed Struggles in Military Conflicts in the First Half of the 21<sup>st</sup> Century,” *Voennaya Mysl’ (Military Thought)*, No. 11 2012, pp. 40-46.

<sup>160</sup> Ibid., p. 41.

<sup>161</sup> Ibid., p. 42.

<sup>162</sup> Ibid., p. 43.

control actions, which are characterized by increased operational speed and efficiency; and the use of special forces to achieve strategic goals [destroy launchers, destroy air defenses, capture oil platforms, PSYOP, etc.].<sup>163</sup> Opponents have to either accept these technological terms or develop new asymmetrical responses in the shape of new forms and methods of fighting.<sup>164</sup>

*2013-Information Confrontation and Future War* (Vladimir Slipchenko, whose article was published posthumously)

**Information superiority:** includes domination in space and reconnaissance systems, and in warning, navigation, meteorological, command and control, and communication assets; advantages in numbers of reconnaissance-strike systems and precision missiles; speed of introducing new programs, systems, and capabilities; and reliable information protection of assets.<sup>165</sup>

**Next (not new) generation war:** man should expect the development of a set of various forces and means capable of disrupting the normal functioning of the planet's information domain and information assets and means of life support for Earth's inhabitants; next-generation warfare may not be on operational or strategic levels, but rather a planetary one; planetary aggressors can provoke technogenic catastrophes in large economic regions and sections of the world with information networks and assets; after 2050 ecological weapons may also be developed for directed effects against countries' mineral and biological resources, local areas of a biosphere (atmosphere, hydrosphere, lithosphere), and climate resources.<sup>166</sup>

**Information confrontation:** information struggles will sharply grow between command and control systems of strike and strategic defense forces at various levels; between strike and defensive assets of the countries; over the creation of a complex information and interference situation in the entire aerospace domain in the region of combat operations and on the entire theater of war (military operations); over imposing on the enemy one's own rules for conducting military operations; and over a reliance on information support for military-technological superiority. Information confrontation is becoming the factor that will substantially influence future warfare itself—its beginning, course, and outcome; information confrontation in noncontact warfare should be understood as a new strategic form of struggle in which special methods and resources act on an enemy's information environment while protecting one's own to achieve strategic goals;<sup>167</sup> the possession of information assets in future warfare is becoming as indispensable an attribute as possession of forces and means, arms, munitions, transport, and so on in past wars; winning information confrontations will result in the achievement of strategic and political goals and in the defeat of an enemy's armed forces (and the capture of his territory, destruction of his economic potential, and overthrow of his political system).<sup>168</sup>

**Noncontact war, intelligence, new-generation (not next-generation) war:** the defensive component of noncontact warfare is found in the employment of the forms and methods to safeguard one's information systems and assets via operational and strategic camouflage, physical

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<sup>163</sup> Ibid., p. 43-45.

<sup>164</sup> Ibid., p. 46.

<sup>165</sup> V. Slipchenko, "Information Resources and Information Confrontation: their Evolution, Role, and Place in Future War," *Armeyskiy Sbornik (Army Journal)*, No. 10 2013, p. 52.

<sup>166</sup> Ibid., p. 53.

<sup>167</sup> Ibid., p. 54.

<sup>168</sup> Ibid., p. 55.

protection of information infrastructure objects, counter-disinformation, and radio-electronic warfare; the strike component of information confrontation in noncontact warfare uses methods such as strategic camouflage, disinformation, radio-electronic warfare, physical damage and destruction of information infrastructure objects, and “attacks” against enemy computer networks (“information aggression” which can employ special effects such as computer viruses, logic bombs, and so on), introduced in a timely fashion against a specific command; “psychological strikes” or “psychological aggression” can also be employed (e.g., graphic depictions in the sky of a religious nature);<sup>169</sup> a special role in NGW belongs to intelligence, to include penetrating computer software, telecommunication networks, radio navigation systems, troop and weapons command and control systems, energy, transport, mass media, finance, and so on; NGW can begin in advance using recce-strike combat systems to plan air-space-naval strikes on a strategic scale, using a noncontact method, against any country in any region of the planet, without building up forces and means beforehand, with such warfare controlled directly from the territory of the state delivering the strikes.<sup>170</sup>

**Space:** space reconnaissance assets are a principal source of information during the planning, organization, and conduct of combat operations, where radio-technical, radar, photo, TV, infrared, and radiation reconnaissance are continuously carried out, providing information in real time; space assets support the guidance of precision cruise missiles to targets;<sup>171</sup> each country preparing or already prepared for noncontact warfare will want to fully control near-Earth and interplanetary space; command and control of all combat intelligence systems, forces, and assets will be implemented from command posts in space and in the air, or from protected command posts on the ground, radically changing the content and nature of warfare, where it is not masses of forces, but rather recce-strike and defensive combat systems that will clash in noncontact warfare, characterized not by the quantitative and qualitative superiority of one of the sides, but rather by structural and organizational factors, effectiveness of command and control, and the quality of communications and guidance systems in support of military operations.<sup>172</sup>

*2013-A War of the Future* (Andrei Baklanov)

**The fight for “spaces”:** future rivalry among nations would be for “spaces,” which include control over northern high latitudes, space militarization, and the seas and continental shelves, where the rivalry is being shaped by the development of international legal mechanisms that were jump-started by technological developments, enabling the large-scale development of these spaces.<sup>173</sup>

*2014-Information is the Best Defense* (Konstantin Sivkov)

**Recent discoveries:** direct-flow hypersonic jet engines and flight management systems; super-high-yield warheads; laser weapons; small, medium, and large robot base platforms (the force must be increased by 20-30 percent with robotized models of arms); electrothermal chemical and electrodynamic guns with high-speed projectiles; super-high-yield electromagnetic pulse generators; multispectral optical target detection devices; ultra-broadband radars with phased-

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<sup>169</sup> Ibid., p. 53.

<sup>170</sup> Ibid., pp. 55-56.

<sup>171</sup> Ibid., p. 56.

<sup>172</sup> Ibid., p. 57.

<sup>173</sup> Andrei Baklanov, “A War of the Future,” *Russia in Global Affairs*, Vol. 11, No. 4, October-December 2013, p. 131.

array antennas based on radio photon elements; zonal rapidly deployed active and passive hydro-acoustic systems for interpreting underwater situational awareness; and means of conducting information wars (particularly in cyberspace) and cognitive control.<sup>174</sup> The report went on to state that new models of nonlethal devices are being developed as well.

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**Factors with the most influence on future warning:** the change in the essence and content of armed conflicts has been affected by several factors: the dependence of the course and outcome of armed struggle on other types of struggles in military conflict—political, informational, psychological, etc.; the informatization of military affairs, which is bringing the development of the means of armed conflict—precision weapons, systems of troop command and control, and management of resources for information effects on humans—to a qualitatively new level; the development and adoption of weapons based on new physical and technological principles, which makes it possible to implement destructive factors that were not available earlier on such a massive scale; and the shift of efforts to the cosmic (space) sphere, with the goal of achieving a guaranteed force superiority over potential enemies.<sup>175</sup> The opposing sides will inflict damage predominantly on enemy weapons and military equipment instead of enemy personnel, so that the course and outcome of armed struggle will rely on the ability of the opposing sides to regenerate weapons and military equipment created on the basis of the latest technologies; this requires the implementation of sets of nontraditional measures (timely creation of reserves of different information resources, etc.);<sup>176</sup> troops will be equipped with directed energy weapons and resources to cause software failures and increase opportunities for surprise actions; new trends to forecast will include an increase in the intensity of armed struggle, a reduction of the duration of operations, and the conduct of armed struggles for more decisive goals.<sup>177</sup>

**Forms and methods, forecasting, COF:** weapon volumes to control information objectives will increase, leading to “the development of forms and methods of operations aimed at the achievement of superiority in command and control and the destruction of the enemy’s precision weapons of various ranges;”<sup>178</sup> further, the development of space systems will cause a future redistribution of the percentages of traditional and new weapons to destroy the enemy during land (land-air, air-naval) operations; the percentage of rocket forces during the fire destruction of the enemy in operations may increase, and aviation employment may be reduced;<sup>179</sup> developing weapons based on new physical and technological principles will change the percentage contribution [note: COF] of various types of effects (fire, energy, software) when destroying the enemy and cause a change in resource dependence for armed struggles; developing directed energy

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<sup>174</sup> Konstantin Sivkov, “Information is the Best Defense. Scientists Call for Sixth Technological Generation to Be Adopted into the Armory,” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 25 June 2014.

<sup>175</sup> P. A. Dul'nev and V. I. Orlyanskiy, “Principal Changes in the Nature of Armed Struggle in the First Third of the 21<sup>st</sup> Century,” *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 1 2015, pp. 44-51.

<sup>176</sup> Ibid.

<sup>177</sup> Ibid.

<sup>178</sup> Ibid.

<sup>179</sup> Ibid.

weapons and the software means of destruction enables the reduction of explosives and takes into consideration using items such as explosive magnetic generators.<sup>180</sup>

## Conclusions

The purpose of this paper was to offer readers a template of how Russian officers appear to evaluate the military and geopolitical setting before them (forecasting, COF, forms and methods), as well as to provide a summary of the ideas percolating within the minds of prominent Russian military authors/theorists. The focus of the template was to demonstrate that there is continuity in Russian thought that we may be neglecting with our fixation on hybrid and NGW concepts, and the focus on prominent authors was to investigate what was important to each group (official voices, research teams, and independent points of view) and whether there was agreement among them on specific concepts and ideas. Following various viewpoints helps researchers categorize concepts, as well as watch whether conversation on the topic continues or ends (as has happened with NGW and is currently progressing with new-type warfare).

The article attempted to reinvigorate a look at what is commonly referred to as the base of Russian military thought—forecasting, the COFM, and the forms and methods of fighting. These are elements often found in the articles of all four groups of authors. They have been used continuously for decades and thus must be kept in mind as we proceed forward. For example, it will be most important to consider the impact of science and technology on the nature of future war. Scientific and technological advances will affect all areas of forecasting: military-technical, military-economic, and even military-strategic thought. Since the Russians are considering the fact that war can now be conducted from the other side of the planet, a new area of forecasting might be strategic-technical although there has been no official proclamation of this development to date. Maybe the US can utilize the idea and get ahead of the forecasting curve.

The article also attempted to offer some context for Russian writings, thereby offering Westerners a way to consider seriously what might or might not be important. What should really concern Westerners is which ideas have been accepted, put into use, and applied to the battlefield, especially in regard to future warfare. One example for Westerners to consider would be how the importance of the IPW and the COFM match up and influence one another. That is, what strategic advantages are uncovered in the COFM assessment and how might they indicate when to initiate the IPW. The COFM may offer inherent recommendations as to the time, place, form, and method for kicking off the IPW. According to military writers, this can only be accomplished under the umbrella of information superiority. However, there do appear to be risks taken by Russia's military that are not always in sync with information superiority. In Crimea, for example, Russia may have performed a risk analysis of potential US involvement, and realized that the COFM military-economic, military-technical, and military-strategic assessment indicated that the US force is tired, basically withdrawn and out of area, and not able to gather much budgetary support. There was thus little to fear from the US based on this COFM, and the intervention into Crimea proceeded as predicted.

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<sup>180</sup> Ibid.

Another advantage of taking a look at so many different opinions on future war is that one can ascertain specific definitions of terms. It is always important to understand what is meant by a term, what it includes, how it could be used. The US should avoid mirror-imaging their concepts onto Russian thought, relying instead on listening to what the Russians are postulating, which can lead to new areas for study. With regard to definitions, asymmetric, indirect, and nonmilitary operations were defined, as well as the IPW, a technological information attack, NGW, military futurology, forecasting, and TSW, among others. With regard to new issues for study, Russian thinking on the use of planetary warfare and space theaters of military operation definitely should remain as an area of consideration by US researchers. Other interesting topics include trends in armed struggles, bioweapons, new-type means and ways of conducting armed struggles (which appears to be emerging), strategic deterrence, understanding the concept of geopolitical conditioning, et al.

Based on the writings that were examined for this analysis, the clear focus among all writers was on the forms and methods of fighting. The topic was mentioned on many occasions by writers in all categories and should be a topic of future study in the West. Thoughts on asymmetric, indirect, and nonmilitary operations were stressed in almost equal amounts behind forms and methods, as was thinking about the evolving nature of warfare and how to handle it.

Such indicators provide Western analysts with a glimpse of where Russian planning and organizational input may be headed, as well as what these writers consider to be future threats to the Russian nation. With a good grasp of this information Western analysts will possess an advantage in their efforts to proceed with their own future prognostications of the unfolding nature of war and how to contend with it.