



RUSSIA

MILITARY STRATEGY

IMPACTING 21ST CENTURY REFORM AND GEOPOLITICS



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FOREIGN MILITARY STUDIES OFFICE (FMSO), FORT LEAVENWORTH, KS

2015

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Cover The cover illustration highlights the words Russia and military strategy. The General Staff and the Academy of Military Science continue to keep strategic thought in sync with future war scenarios and high-tech developments, such as hypersonic missiles. The subtitle informs that military reform is designed to incorporate new weaponry and organizational shifts into the force. The objects clutched by the double-headed eagle signify Russia's reform progress from the era of Kalashnikov rifles to the era of digital input guaranteeing the "informationization" of military equipment. Geopolitical initiatives ensure that Russia looks out for its strategic interests.

The views expressed in this document are those of the author and do not reflect the official policy or position of the Department of Defense or the US government.

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FOREWORD

For the past ten years, as Prime Minister and President, Vladimir Putin has led an extensive reorganization and reequipping of his country's armed forces. Further, he has taken several opportunities to reclaim Russian territory that was taken, from his perspective, illegally. This book describes Putin and the military's use of various strategic concepts, the Defense Ministry's new equipment and reform initiatives, and Putin's geopolitical quest for influence in the Arctic and Ukraine. Included in the discussion are some of the unintended consequences of his actions (negative world opinion, sanctions, NATO responses, etc.).

The book is divided into three parts. Part One, Strategy, has three chapters. They discuss President Putin's personality and background that drive his thinking, especially his mistrust of the West; Russia's military concept of strategy; and Russia's use of indirect, asymmetric, and non-military actions. Part Two, Future War, has four chapters. They discuss the armed forces new equipment, new forces (the Aerospace Forces in particular), and there is an extended discussion of future war and cyber age thinking and adjustments. Part Three, Geopolitics, has two chapters. One details Russia's Arctic activities and the second describes the methods used to take Crimea and occupy parts of Eastern Ukraine. Potential future uses of Russia's armed forces are described in the conclusions.

The book supplements the author's prior work titled *Recasting the Red Star*. It should serve as a welcome addition to the shelves of those seeking an understanding of Russia's military strategy, reform, and geopolitical thought.

Thomas Wilhelm
Director, Foreign Military Studies Office
2015

DEDICATION

This book is dedicated first of all to my wife, our children and their spouses, and especially to our grandchildren—it is for the latter that grandparents everywhere work to develop an environment in which their offspring will live and prosper in safety and cooperation with others.

Second, this work is also dedicated to the friendships that developed among Russian and US officers at the end of the Cold War. Those who were not involved in the military exchanges cannot fathom the good will and sincere desire to work together that was felt after years of confrontation. While this work now describes a revitalized Russian military that considers the US an adversary again, there is the hope that this too will pass someday soon. We have much in common that should and can be turned to good use. As one Russian admiral remarked during those years of cooperation, we owe better US-Russian relations as part of the heritage we pass along to our grandchildren. I couldn't agree more.

ACKNOWLEDGMENTS

The author is solely responsible for the selection and analysis of the material in this work.

Within FMSO there are several people to thank. In particular, the author would like to acknowledge the support of two individuals. First, Dr. Harold Orenstein provided countless hours to the development of this book, and is due special recognition. He translated several key documents from Russian into English, and he had the difficult task of editing all of the book's chapters, which sped along the book's printing. In some cases, I made changes or added more material after his initial editing, so any mistakes you find are mine, not his. Second, special recognition is also due to Mr. Hommy Rosado, formerly of FMSO, who designed the artwork for the cover and the book's sections. Mr. Rosado's images enhance the ties between words and concepts. Finally, the author would like to express his thanks to FMSO director Mr. Thomas Wilhelm for ensuring time was available to write this work; and to deputy director Kent Baumann and analyst Rob Kurz for their help in making sure chapters were properly cleared.

INTRODUCTION

Russia is a nation that has always been blessed with creative minds, whether it be literary giants like Fyodor Dostoyevsky and Leo Tolstoy, artists such as Peter Carl Faberge, composers such as Pyotr Tchaikovsky, or the military genius of an Aleksander Svechin or Aleksander Suvorov. Russia also has been blessed with the work of innovators in military equipment, such as Mikhail Kalashnikov, who created the world-renowned AK-47.

Today's military innovators are the modern-day scientists and engineers who assist in the creation of contemporary and new concept weaponry; and the military theorists who study changes in the character of war. Digital specialists understand how to develop and employ the capabilities of electronic warfare equipment, satellite technology, and fiber optic cables. While Kalashnikov's fame is imbedded in Russia's culture, it may be harder to find a current digital entrepreneur whose legacy will endure as long as his: there are simply too many of them, and their time in the spotlight appears to be quite short, since even now we are about to pass from the age of cyber to that of quantum. It is difficult to predict whose discoveries will be the most coveted by tomorrow's military-industrial complex, not to mention the decision-making apparatus of the Kremlin and General Staff. Military theorists are playing an important role as well. They are studying how new weaponry has changed the correlation of forces in the world, the nature of war, and the impact of weaponry on both forecasting and the initial period of war.

Russian Chief of the General Staff Valery Gerasimov noted in March 2015 that the military's main tasks are to maintain the combat readiness of the Armed Forces and to ensure the Russian Federation's defensive capability. Russia's military heritage will assist this process tremendously. Combat readiness includes updated strategic thought, new equipment revelations, and future-war projections. Defensive capability includes not just protecting Russia's territory, but also the security of the nation's national interests and conduct of geopolitics. Capturing the essence of these developments is the goal of this book. In the process a

few templates for understanding Russian military thought and actions are offered for further consideration and use.

The work is divided into three parts. They address Russian methods of approaching strategy, future war (focusing on new weapons and organizations), and geopolitics. All three are important for foreign analysts to consider when attempting to predict the vector (s) in which Russian military capabilities and actions are heading. It is vital to remember that events that have transpired over the past 25 years have greatly affected Russia's view of the world today and its strategic thought. Both the military and President Vladimir Putin's colleagues in the Russian security complex are keen to overcome what they perceive as feelings of national humiliation and insecurity that they say were imposed upon them by the West.

Part One of this book contains three chapters. They are focused on the personality of President Vladimir Putin, the development of Russian strategic thought over the past several decades, and contemporary military thought on the use or non-use of force, to include how Russian military officers think. Chapter One provides details on how Putin thinks and how he has been affected by specific issues. Ideology, politics, and military issues affecting his decision-making are discussed. Included in the assessment are several thoughts from some US and Russian specialists with key insights into political thought in Moscow. Chapter Two represents a detailed look at the development of Soviet and now Russian military strategy. The chapter examines strategic thought from the time of Svechin to the present, highlighting, in particular, those elements of strategic thought that continue to influence how forces will be used even today. Chapter Three offers a look at how Russia utilizes indirect, asymmetric, and nonmilitary operations, as well as how this differs from most Western interpretations of the General Staff's use of strategy. In particular, the chapter examines how Russian military officers think and offers commentary on cross-domain deterrence thinking in Russia, which is a topic usually discussed only as a nuclear issue. Here several other potential adaptations of deterrence theory are reviewed. The chapter offers a differing view than some on the issue of hybrid war as a Russian concept and ends with a look at Russian reflexive control theory.

Part Two examines Russia's preparation for future wars. Included in the discussion are new military equipment and aerospace developments, future-war organizations, and digital expertise. Chapter Four deals with several new items of equipment that are now in the Russian inventory, including an extensive look at Russian unmanned aerial vehicles and electronic warfare equipment. Chapter Five is dedicated to the new Aerospace Force and the Strategic Rocket Forces. Defense Minister Sergey Shoygu has stated, "Their creation was prompted by a shift of the 'center of gravity' in combat struggle to the aerospace sphere." The discussion includes the rationale behind Russia's decision to integrate the Air Force, Air Defense Forces, and Space Forces into an Aerospace Force and to declare aerospace a new theater of military operations. The continued development of the Strategic Rocket Forces is covered, since it has found new impetus from the strategic guidance of President Putin. Chapter Six considers several organizational aspects of future-war thought, including equipment under development, organizational and doctrinal changes, and future-war thinking. Equipment under development includes robotics and laser research. Organizationally there is a look at Russia's new science companies and the Advanced Research Foundation (the Russian military's DARPA equivalent), followed by a summary of several articles discussing the future contours of conflict and the changing character of war. Chapter Seven discusses Russia's cyber thinking and organizational development. This includes a review of a Russian-authored cyber book, recent cyber developments in Russia, treaties that Russia has made with other nations, and several policy efforts directed by the Kremlin and the Federal Security Service (FSB) to monitor cyber compliance. A section on military thinking on cyber issues is included, along with Russian efforts to control the international cyber environment. China is a main partner of Russia in this regard.

Part Three is an examination of the application of military power and strategy to Putin's geopolitical goals, specifically as applied to military operations in the Arctic and Ukraine. Chapter Eight investigates the ongoing militarization of the Arctic. The two goals of the military in the region appear to be to establish an overarching monitoring capability and a quick response, powerful military deterrent. Russia has continued

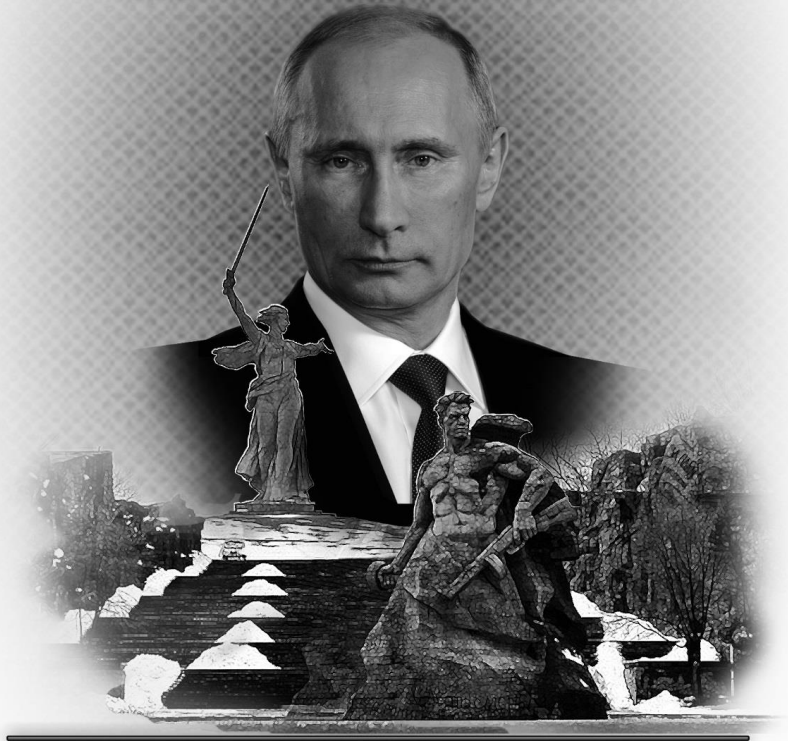
to improve its military presence and infrastructure in the region. The buildup includes two light brigades, two airborne divisions that are on-call, new Borei- and Yasen-class nuclear missile submarines, rebuilt airfields, and new aerospace defense units. Meanwhile, Russian administration officials are working feverishly with the United Nations and other organizations to establish legal claims to the Arctic. Putin has made the Arctic a region of his personal interest, noting that the Arctic has been under “our sovereignty for several years. This is how this will be in the future.” This does not bode well for the future of the Arctic’s peaceful development. Chapter Nine discusses how and why Russia became engaged in the conflict in Ukraine, to include the interventions into both Crimea and eastern Ukraine. Russia’s strategy and use of new concepts (new reality, self-determination, use of surrogates, nonmilitary issues, indirect and asymmetric thinking, etc.) are examined. The end of the chapter focuses on Russian actions in Crimea, as it appears Russia is doing one of two things there with its massive military buildup: either it is ensuring that Crimea can never be given back to Ukraine due to all of the military equipment it now has stationed there; or it is preparing a bridgehead from which it can launch a pincer operation against Mariupol or advance quickly on Odessa or Transdnier.

Chapter Ten provides conclusions drawn from this study.

PART ONE: STRATEGY

PUTIN & STRATEGY

INDIRECT | ASYMMETRIC | NON-MILITARY



CHAPTER ONE: VLADIMIR PUTIN: PATRIOT, ZEALOT, OR THREAT?

Convictions largely determine the boundaries of political conduct (and of social activity). That which people consider important and true, that which they believe to be good and worthwhile, serves to orient them when performing particular actions and taking particular decisions.¹

Introduction

This chapter will first briefly examine President Vladimir Putin's personality and how he explained himself to the US nearly eight years ago in an interview with *Time* magazine. It will then utilize Andrey Kokoshin's ideology-politics-military strategy triangle as a way to view people of conviction. Kokoshin is a well-known Russian who served as the head of the Security Council and as a Deputy Minister of Defense in Russia. He wrote that understanding the relationship inherent in the triangle helps untangle the convictions, thoughts, and actions of individuals or groups that might seem irrational.² This triangle, when applied to Putin's personality, becomes an interesting measuring tool for placing his actions in context. The triangle will be contrasted with the views on Putin of two US authors and two Russian authors who also have closely considered the Russian President's decisions and personality.

It is apparent that Putin's personality is frightening to many, since it involves the risk of starting a global war. In an interview in October 2014 he noted the following:

¹ Andrey Kokoshin, *The Political Science and Sociology of Military Strategy*, The Institute of Problems of International Security, URSS/KomKniga (publishers), 2005, p. 15. Many of the sources used in this chapter are US based. Kokoshin and a few other Russian writers are the exception, not the rule.

² Kokoshin.

But let's not forget the lessons of history. First of all, replacements of the world order—and that is the scale of developments we are witnessing today—have usually brought in their wake, if not global wars, then chains of intense local conflicts. And, secondly, world politics primarily means issues of war and peace and humanitarian issues, including human rights.³

Putin's Personality

Russia's President Vladimir Putin is a man of conviction who seldom backs down in the face of adversity. Instead he doubles down. Masha Gessen, author of a book on Putin titled *The Man without a Face: The Unlikely Rise of Vladimir Putin*, writes that his convictions have come from a difficult childhood. Putin was involved in fights as a young man anytime someone tried to humiliate him, and he has a barely containable temper. He longed to join the KGB since childhood. His rage reached paralysis, Gessen notes, when he was forced to standby and witness the downfall of his KGB's Stasi headquarters in Dresden, East Germany.⁴ Putin's reliance on convictions appears to border on the messianic. The West, quite naturally, sees his convictions as a threat to world peace and stability.

Yet despite his convictions, Putin may possess some insecurities, perhaps due to the way information is provided to him by his staff. They sense conspiracies everywhere and visions of people interested in orchestrating color revolutions to overthrow his regime or imposing their values on Russia's populace. Their input most likely affects his thinking.

Putin has an interest in ensuring that the Russian people are proud of their heritage and he has even contracted people to rewrite Russian history books for the educational system as his sense of history, and those around him, differs from the rest of us. The fact that the Soviet

³ *Interfax* (in English), 24 October 2014.

⁴ Masha Gessen, *The Man without a Face: The Unlikely Rise of Vladimir Putin*, Granta, 2012, pp. 43-71.

Union broke apart of its own accord, and nations developed independently according to law and with the help of Russia, is discounted in his retelling of history. He avoids restating how things unfolded. So far, no nation that broke away from Russia has offered to return to Putin's Russia. They all appear happier without him.

Rewriting history supports the fact that Putin has created his own version of objective reality, which often contradicts the reality in which the rest of the world lives. Russian media reflects this reality with propaganda that is one-sided and arrogant. Lilia Shevtsova, a Russian Kremlin expert, stated that "We can't trust anything. Even with Soviet Propaganda, when they were talking with the Soviet people, there were some rules. Now, there are no rules at all. You can invent anything."⁵ It appears that it is Putin's understanding of reality that is reflected in the media.

Putin and his staff are apt to do anything possible to avoid responsibility for any action seen in a negative light by the international community. No issue better reflects this point than the shoot down of MH17. The Ukrainian Armed Forces have voice intercepts of rebel transmissions noting that they had just shot down a plane, thinking it was a Ukrainian transport plane. An international commission concluded that a Buk air defense system shot it down. International opinion strongly supports the assumption that it was Russian-supported rebels who shot the missile. Russia, on the other hand, has offered several different versions of what happened. Each time an independent commission concludes the same thing in the West, Russia comes up with "new evidence" which then offers an entirely different version (another plane in the area, a Ukrainian Buk in the area, different ground coordinates from which the intercept took place, etc.). These actions all work together—the new objective reality, evasion of responsibility, and sense of conspiracies.

⁵ David M. Herszenhorn, "Russia is Quick to Bend Truth about Ukraine," *The New York Times*, 16 April 2014, p. A11.

Putin is a man of surprises. No one expected him to move on Crimea in 2014. Russia is a land of eleven time zones (the largest on earth, with 6.6 million square miles) and only 146 million people (Bangladesh has 156 million spread over only 56,000 square miles). It clearly doesn't need more territory. It has more than enough space for its people, which troubles strategists trying to make sense of Russian President Vladimir Putin's land grabs. Troubling, that is, until one begins to unravel his personality and understanding of Russian history as mentioned above. If the demise of the Soviet Union was the greatest geopolitical tragedy in the world, as Putin states, then his use of surprise makes more sense. He believes he is restoring what is his.

A further surprise was his criticism of Vladimir Lenin and describing the latter's responsibility (not Putin's or even former President Boris Yeltsin's) for the conflict in Ukraine. Putin stated that Lenin and his government long ago developed the situation in Donbass, the industrial region in eastern Ukraine where a rebellion has flared, by drawing borders between parts of the Soviet Union in order to "increase the percentage of proletariat" in a move Putin deemed "delirious." He also criticized Lenin's concept of entities in a federative state having the right to secede, and attributed the concept to the 1991 dissolution of the Soviet Union.⁶

Putin is also a man of pressure. As the leader of Russia, he is quick to use his personal pressure to get what he wants. In Ukraine, he was able to pressure President Yanukovich into siding with him over the European Union (EU). However, the aftermath of his discussion with Yanukovich can be deemed anything but successful. He has used pressure internally to dampen dissent and to chase organizations out of Moscow.

⁶ Vladimir Isachenkov, "Putin Denounces Soviet Founder Lenin," *The Washington Post*, downloaded on 9 February 2016, at <https://www.washingtonpost.com/world/eup=rope/putin-denounces-soviet-founder-lenin/2016/>

His desire to return Russia to great power status is thus understandable, although not justifiable, when his background and personality are taken into consideration. There are other, more negotiable or peaceful ways to achieve his goals than unleashing attacks on a former and respected Russian territory.

Putin's 2007 *Time* Magazine Interview

In 2007, at the conclusion of his first Presidential reign, Vladimir Putin was recognized as *Time's* Man of the Year. In an interview at his dacha, he offered several comments that Westerners recognized as warning signs even at that early time, due to his contempt toward the West and the US in particular. Putin stated that America was out to interfere in Russia's affairs, that the US treats Russia as a party's uninvited guest, or as some savage in the wild. He stated that his thoughts are not misconceptions, but based on US attempts to influence Russia's internal and foreign policies.⁷

Putin, whose paternal grandfather was a cook for both Lenin and Stalin, stated that "the ability to compromise is not a diplomatic politeness but rather taking into account and respecting your partner's legitimate interests" (which makes one wonder about his unwillingness to compromise over Ukraine's legitimate interests and sovereignty) and that "Russia has no intention of joining military-political blocs because that would be tantamount to restricting its sovereignty."⁸ He also noted that it is not possible to have morality separated from religious values, and that the KGB taught him to gather information objectively, first and foremost, which has helped him as President.⁹

Former Soviet General Secretary Mikhail Gorbachev, interviewed by *Time* in 2007 regarding Putin's Man of the Year designation, said that he felt Putin had not retreated from democracy and that Russia would continue on its path. He also stated that after the chaos

⁷ Adi Ignatius, "A Tsar is Born," *Time*, 31 December 2007-7 January 2008, pp. 48-49.

⁸ *Ibid.*, pp. 50-51.

⁹ *Ibid.*, p. 51.

of the Boris Yeltsin regime in the 1990s, Russia needed a leader willing to take authoritarian steps.¹⁰ Few would disagree completely with this analysis if they had witnessed Russia's economic situation in those early days.

Henry Kissinger, in the same issue of *Time*, noted that Russians value Putin for restoring the country to a respected place in the international system; for improving the standard of living compared to what existed when he took over; and for making the system more responsive to the public than previous ones.¹¹

Simon Sebag Montefiore, who wrote the books *Young Stalin* and *Catherine the Great and Potemkin*, noted in the *Time* issue that any ruler throughout Russian history has not been able to simply leave power, for fear of "exposing himself and his henchmen to vengeance from their rivals."¹² Yeltsin did simply leave power, but Putin did not. He became Prime Minister and later orchestrated a change in the Russian constitution that would allow him to serve more Presidential terms if elected. He does not seem to have the same faith as Yeltsin in the current Russian atmosphere.

Putin's belief in restoring Russian greatness and moving those standing in his way, whether it be dissidents or competitors or nations, is a good methodology through which to view his newest term as President, which started in 2012. He is moving on all fronts and vectors, with the military in the lead.

¹⁰ "Viewpoint: Mikhail Gorbachev, 'Russia Needs Putin,'" *Time*, 31 December 2007-7 January 2008, p. 60.

¹¹ "Kissinger on Putin: 'He thinks he is a reformer,'" *Time*, 31 December 2007-7 January 2008, p. 85.

¹² Simon Sebag Montefiore, "His Place in History," *Time*, 31 December 2007-7 January 2008, p. 86.

Kokoshin's Way of Considering Conviction: Ideology, Politics, Military

Andrey Kokoshin is the author of the initial citation at the start of this chapter on the importance of conviction as well as the discussant of the ideology-political-military triangle. He offered a template for measuring conviction. It is applied here to Putin.

Ideologically, Putin has constructed a new reality unlike any seen before in Russia, one designed not to persuade but to cast enough doubt to make the truth a matter of opinion. The idea of “objective reality,” a Marxist concept through which one understands the world (and which the KGB taught Putin), has taken on a one-sided approach under him.

Putin is a believer in Russian Orthodoxy. He was baptized in secret as a child. His name inspires confidence in those of religious faith, as “poot” means the path or the way in Russian. He has helped reconstruct literally thousands of churches that were destroyed during the time of the Union of Soviet Socialist Republics (USSR). Ironically the church's destruction emanated from the KGB's orders, where Putin served during the USSR's reign. He has resurrected the image of St. Sergius as the savior of Russia, thereby offering a replacement for St. Vladimir and Holy Rus. The latter are the most important religious links for Russians to Orthodoxy, but both are historically based in Ukraine. Severing these relations was a serious blow to Russia. The Russian Orthodox clergy believe St. Sergius will serve as an example of spiritual hope for Russians, since he embodies “what was and is the best in Russia” and “in many ways he is the source of Russia itself.”¹³

Putin's actions, according to a *New York Times* editorial, are further influenced by several noted philosophers whose beliefs help him overcome many of his feelings of humiliation, which many Russians have felt since the USSR's disintegration. Ivan Ilyin (1883-1954),

¹³ Neil MacFarquhar, “From Pilgrims, Putin Seeks Political Profit,” *The New York Times*, 3 August 2014, pp. 4, 6.

apparently Putin's favorite, wrote that "we trust and are confident that the hour will come when Russia will rise from disintegration and humiliation and begin an epoch of new development and greatness."¹⁴ Russia has a unique spiritual status, a devotion to Orthodoxy and belief in autocracy, and a purpose (Russian exceptionalism). Ilyin believed an anti-Christian virus was transferred to Russia from the West, introducing "materialism, irrationalism, and nihilism" and morally blinding mankind while breaking Russia's bond with God.¹⁵ Another favorite philosopher, Nikolai Berdyaev (1874-1948), defended Russia's traditional values and cited the need to ward off moral chaos (emblemized for Putin, perhaps, by gays and other activists who do not fit into his world or moral view). A final favorite, Vladimir Solovyov (1853-1900), noted that Russia's historic mission is to unify humanity due to its location between the Catholic West and non-Christian East.¹⁶

Politically, Putin is an opportunist of the first order. With regard to his actions in Crimea, Putin capitalized on the strong political hand he had been dealt (chaos in Kiev, German support, US budget woes and a tired US military, etc.) and acted out of instinct. Putin appears to be no Stalin in the sense that he is willing to take great losses, but he does seem to handle risk well, taking them when he has to. He keeps his options open and appears prone to "doubling down" in the face of accusations, as he has done after the MH-17 tragedy by continuing to arm the separatists. And he is not through in Ukraine, not by any means. As early as 1994 he said that Russia had voluntarily given up "huge territories" to the former USSR republics, including areas "which historically have always belonged to Russia."¹⁷ He was thinking "not only about Crimea and northern Kazakhstan, but also for example about the Kaliningrad area."¹⁸ In Putin's opinion Russia could not simply abandon 25 million

¹⁴ David Brooks, "Now on View: The Rise of Russia's Messianic Spirit," *The Kansas City Star*, March 5 2014, p. A13.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Timothy Garton Ash, "Putin's Deadly Doctrine," *The New York Times*, 20 July 2014, p. 5.

¹⁸ Ibid.

Russians, now living in the former USSR republics, to their own fate.¹⁹ His political goal is to recapture lost territory and make the world respect the interests of the Russian state and people as a great nation. Since Ukraine is THE key element of Russian history, Putin will do all in his power to regain this land.

Putin rules Russia's political hierarchy. He appoints governors, sets difficult entry rules for new political parties, and has a pliable Duma that bends to his requests. Kokoshin notes that politics, like strategy, is a sphere of free creativity, of art. Putin has shown over the years that he is an extremely creative artist. Retooling the Russian constitution to ensure that he can be reelected and serve as Russia's President into the next decade is but one example of this trait. Further, he remains indebted to the KGB and current security services. They are not only a guarantee of his security, but also a political arm that can be relied upon to carry out Putin's policies in covert ways. Anna Politkovskaya, a courageous Russian journalist who reported on the war in Chechnya and wrote on Putin, stated before her death (she was assassinated in the elevator to her apartment) that "Putin has failed to transcend his origins and stop acting like a KGB officer. He is still busy sorting out his freedom-loving citizens; he persists in crushing liberty, just as he did earlier in his career."²⁰ Indirectly, Putin has been rumored or accused (without any evidence) of being behind the bombings of apartment buildings in Moscow that were blamed on Chechen terrorists and resulted in the second war against Chechnya; and behind the deaths of people related to these claims, such as Alexander Litvinenko, a former Russian secret service officer who fled to London and directly accused Putin of involvement in the apartment bombings. Litvinenko was later poisoned and died. A British court ruled that Putin "probably" was behind the slaying. Others who were in open opposition to his orders or policies, among them noted journalists and politicians, have also been murdered.

¹⁹ Ibid.

²⁰ Paul Robinson, "Putin's Philosophy: the Russian Leader's Paradoxical, Strong-State 'Liberal Conservatism,'" *The American Conservative*, Vol. 11, No. 4, page unknown, downloaded on 5 August from <http://www.questia.com/magazine/1G1-287635761/putin-s-philosophy-the-russian-leader-s-paradoxical>

However, Putin's complicity in these events are only rumors. There is no evidence to support these charges.

With regard to **military strategy**, Putin's directors of national security, such as Chief of Russia's General Staff Valery Gerasimov, continue to extensively quote the works of famous Russian authors on strategy. Gerasimov, drawing on the work of the noted Russian historical strategist Alexander Svechin, quoted the famed author in the following way:

It is unusually difficult to foresee the circumstances of a war...it is necessary to work out a particular line of strategic conduct for each war, and each war represents a partial case, requiring the establishment of its own peculiar logic, and not the application of some sort of model.²¹

The well-known Russian Generalissimo Alexander Suvorov also noted that leaders should "act according to the circumstances and always promptly."

Establishing or uncovering a particular logic involves the science of foresight (or an analysis of the future strategic situation) based on the contemporary strategic situation and on an assessment of the correlation of forces (COF) of two sides, which is a Russian military specialty. There is no standard model to follow. Russia's military activities under Putin have followed this logic, as each military intervention has been different. In Estonia it was a cyber-attack. In Georgia it was a planned intervention, complete with military exercises on the border before the invasion began. In Crimea and Ukraine it has been the use of surrogates and fixed referendums, supplanted with an extensive domestic

²¹ 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.

propaganda campaign that has been stridently anti-Western and anti-international institutions (NATO, UN, EU).

Further, it is clear that in the information age Russia's leaders understand that "strategic ambiguity" can become a key policy instrument, a vital aspect of the nonmilitary aspect of warfare and military strategy. This could apply to specific military actions (for example, Russian counter-claims as to who shot down MH-17, based on Russia's contamination of the crash site and the initial blockading of the investigators from the site, making it impossible to place blame) or the manipulation of strategic communications, to include the holding of fixed referendums in Crimea and Eastern Ukraine and then reporting on the referendum as the "will of the people." Through the international media, Putin can reach other populations and introduce doubt into those audiences that rely on a variety of opinions. His population doesn't always have that option.

Two US Views on Putin's Pros and Cons: Remnick versus Mearsheimer

Over the past several months, many US articles and op-eds have appeared about Ukraine and Putin. This section examines two of these opinions. They offer a contrasting view of Putin's rationale for acting from that offered by Andrei Kokoshin's prism of analysis. The first article is by David Remnick, the editor of *The New Yorker*, who wrote about Putin in August 2014 through his own experiences in Russia and through those of his friend, Michael McFaul, who had just returned from his two year stint as US Ambassador to Moscow. The second article, by John J. Mearsheimer, a well-known writer and professor of political science at the University of Chicago, appeared in the September/October 2014 issue of *Foreign Affairs*.

Remnick. The overall tone of this article is that Putin started out on a very conciliatory and cooperative path with the US (help with staging bases after 9/11, etc.), adding that he was not anti-US and saying in 2000

that it was hard to “visualize NATO as an enemy.”²² Since then, however, he has become increasingly aggressive, arrogant, and vindictive over the years. For example, Putin accused Hillary Clinton of giving “the signal” that sparked the Bolotnaya Movement, which were a series of anti-Putin demonstrations in Moscow.²³ Since 2000, Putin has disempowered disloyal regional governors, crushing oligarchs who didn’t heed his insistence to stay out of politics, taking control of TV channels, and neutering several opposition political parties.²⁴ His popularity has risen due to high energy prices, which enabled him to increase salaries and pensions and create a growing urban middle class. Domestic stability has overcome Russia’s sense that Putin now had his own oligarchy and some authoritarian legitimacy.²⁵

But his arrogance greatly reduced his popularity abroad, Remnick notes. In 2009, when talking to Obama, Putin reportedly demanded that the US cede to him the former Soviet republics—Ukraine above all—as a Russian sphere of influence. From 2004 to 2009 NATO had welcomed several former East European nations and former Soviet republics into its ranks,²⁶ which obviously rankled Putin. One former aide said Putin loathes spontaneity in politics, such as the 2014 events in Ukraine’s Maidan Square. He believes the West is hypocritical, arrogant, self-righteous, and dissolute. Putin wants to strengthen traditional Russian values such as ties to the Russian Orthodox Church. He lashed out at the West for treating Russia like a defeated “vassal” rather than a great country.²⁷ With regard to values, Russian airwaves are full of the “treachery” of Russian liberals and US manipulations. Commentators

²² David Remnick, “Watching the Eclipse,” *The New Yorker*, 11 & 18 August 2014, p. 58.

²³ *Ibid.*, p. 52.

²⁴ *Ibid.*, p. 57.

²⁵ *Ibid.*, p. 58.

²⁶ *Ibid.*

²⁷ *Ibid.*

such as Dmitri Kiselyov tell viewers that fascists²⁸ abound in Ukraine and that the US State Department underwrites revolution.²⁹

Finally, Remnick writes that Putin has unleashed an ideology of *ressentiment* (deep-seated resentment accompanied by a sense of being powerless). Tikhon Shevkunov, a Russian Orthodox priest and Putin's *dukhovnik* or spiritual adviser, produced the docudrama "The Destruction of an Empire: the Lesson of Byzantium" that purports to blame the perfidious West for Byzantine's fall. If Putin is under the influence of these people, then they represent a key reason for his rationale and policies. Other TV or philosophical supporters of Putin, in addition to Kiselyov and Shevkunov, are Aleksandr Prokhanov, Aleksandr Dugin, and a host of others.³⁰ They are all anti-West.

Mearsheimer.

Mearsheimer's key points represent a different argument,³¹ that Russia's actions in Ukraine and Crimea are due to the actions of the West, in particular NATO enlargement. The latter progressed with countries added to the organization in the following way: 1999 Czech Republic, Hungary, Poland; 2004 Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia; and 2009 Albania and Croatia.³² Mearsheimer writes that NATO and the EU are expanding eastward and

²⁸A Russian dictionary notes that fascism is "A form of open terrorist dictatorship of the imperialist bourgeoisie which relies upon the forces of anti-Communism, chauvinism, and racism, with the goal of destroying democracy and suppressing the worker movement, as well as preparation for aggressive wars." See S. I. Ozhegov, *Dictionary of the Russian Language*, Moscow 1984, p. 738. This definition differs from a Webster's dictionary definition, which states that fascism is "a political philosophy, movement, or regime that exalts nation and often race above the individual and that stands for a centralized autocratic government headed by a dictatorial leader, severe economic and social regimentation, and forcible suppression of opposition." See *Merriam-Webster's Collegiate Dictionary*, 10th edition, 1998, p. 422.

²⁹ Remnick, p. 60.

³⁰ *Ibid.*, pp. 60-62.

³¹ John J. Mearsheimer, "Why the Ukraine Crisis Is the West's Fault," *Foreign Affairs*, September/October 2014, pp. 77-89.

³² *Ibid.*, pp. 78-79.

that the recent “coup” in Ukraine overthrew Ukraine’s democratically elected and pro-Russian president. This event, as well as Ukraine’s Orange Revolution in 2004, were both backed in Mearsheimer’s opinion by the West and became a main reason that caused Putin to act.³³

Western elites, he adds, believe realism holds little relevance and instead believe liberal principles such as rule of law, democracy, and economic interdependence are in vogue.³⁴ The result is that the US unknowingly provoked a major crisis over Ukraine. Western leaders denied that Putin’s behavior could be motivated by legitimate security concerns.³⁵

The new government in Kiev was pro-Western and anti-Russian to the core and it was clear that “Washington backed the coup,” Mearsheimer’s proof being that Victoria Nuland, the US assistant Secretary of State for European and Eurasian affairs, and Senator John McCain participated in antigovernment demonstrations.³⁶ Putin pressured Kiev not to side with the West, “making it clear that he would wreck Ukraine as a functioning state before he would allow it to become a Western stronghold.”³⁷ Mearsheimer concludes by noting that Putin and his compatriots are realists, whereas the West adheres to liberal ideas about international politics; and that making Ukraine a member of NATO makes no sense, since other members have no intention of defending it.³⁸

The opinions of Remnick and Mearsheimer clearly represent two contrasting ideas about responsibility for Russia’s involvement in Ukraine. These are not, of course, the only two writers commenting on Putin’s personality and policies.

³³ Ibid. p. 77.

³⁴ Ibid., p. 78.

³⁵ Ibid., pp. 84-87.

³⁶ Ibid., p. 80.

³⁷ Ibid., p. 82.

³⁸ Ibid., p. 88.

Other US Opinions

Recently Karen Dawisha, a professor of political science at Miami University in Ohio, wrote a book titled *Putin's Kleptocracy*. In it, she lays bare the “systemic embezzlement, skimming, fraud, and personal enrichment through power”³⁹ that have long been assumed about Putin’s inner circle. This was done by Putin and his KGB friends because they wanted an authoritarian regime for Russia, since “controlling the political and economic development of the country was for them a greater ambition than building any democracy.”⁴⁰ Putin’s personal interest in lining his pockets is as important to him as the interests of the state, the book implies.

Bret Stephens, writing in the *Wall Street Journal*, described his version of how to “take down Putin,” but it sounded long-term or inconclusive. He stated that this might happen only when the country is against Putin, due to his humiliation of the population. Stephens noted that Russian citizens don’t mind being lied to by their president regarding whether Russian troops were in Ukraine or not, and that:

Such is the combination of cynicism and grandiosity that lies at the heart of Russia’s political pathology and that Mr. Putin has so skillfully exploited. Too frequently, Russians have no expectations as to the probity or decency of their leaders. But they have great expectations of their entitlements as a world power. It needs to be the opposite.⁴¹

Other authors highlight Putin’s tendency to cherry-pick items in support of his notion that Russians are exceptional people who are threatened, and that he is the person responsible for saving them. He is the savior not only of Russians in Russia but also Russians living abroad.

³⁹ Anna Arutunyan, “Gangsters’ Paradise,” *The Wall Street Journal*, 1 October 2014, p. A15.

⁴⁰ *Ibid.*

⁴¹ Bret Stephens, “How to Take Down Putin,” *The Wall Street Journal*, 9 June 2015, p. A11.

They must be saved from infection by Western values. Putin must defend Russia from being, according to one Western report, “politically encircled abroad and culturally colonized by Western values at home.”⁴² Putin meanwhile totally ignores the more humanitarian input for the betterment of Russia from someone like Andrey Sakharov or a reasonable oppositionist such as the now-deceased Boris Nemtsov. Only his version of reality is acceptable.

His accusations against the West do not seem to hurt his popularity in some nations. In China, for example, a biography of Putin was listed in the top ten non-fiction best sellers at the *Beijing News*. There is little wonder at the book’s popularity, since Putin and Chinese President Xi Jinping both want to restore their nations to respectability and erase years of what they deem national humiliation. Both fight what they characterize as Western ideological influence, such as pro-Western media outlets and non-governmental organizations. And both, as Xi has recently demonstrated with the capture of several Hong Kong book dealers, are in control of what is produced and written.

Two Russian Views on Putin’s Pros and Cons: Trenin versus Pavlovskiy

Trenin: Russian Dmitri Trenin, a renowned analyst at the Carnegie Institute’s Moscow Center, wrote in December 2014 on the issues that caused Putin to act. He offers readers a counterpoint to several of the issues raised in Remnick and Mearsheimer’s articles. The summary of his article is longer than Remnick and Mearsheimers, since fewer Westerners are familiar with Trenin’s (and Russians in general) point of view.

Trenin offered several instances where Putin felt he had been betrayed by the West. They included the following:

⁴² Mark Galeotti and Andrew S. Bowen, “Putin’s Empire of the Mind,” *Foreign Policy*, May/June 2014, p. 18

- Putin’s alienation from the West began in 2003. An event that year that was scuttled by the West was the resolution of the conflict in Trans-Dniester via the Kozak memorandum, which was cancelled at the last moment.
- Putin, in 2007, lashed out against the post-Cold War order in a speech at the Munich Security Conference; in 2008 he went to the NATO summit in Bucharest to stress the dangers of a domestic strife in Ukraine if a NATO path were to be offered.
- Putin concluded that the West did not respect Russia’s interests or views. Moscow’s 2008 proposal for a new European security treaty that would keep NATO from admitting new members was dismissed by the West. The war with Georgia began that year and led to military reform in Russia.
- Putin’s 2010 proposal for a joint ballistic missile defense was thwarted by the West, so he went ahead with plans to build them against NATO.
- Putin saw no breakthroughs in 2011 on key issues such as missile defense, and believed the West misused the no-fly zone over Libya to remove Muammar Qaddafi from power.
- Putin’s decision to run again for President in 2011 was met by criticism from Russia’s liberals, and he felt this was proof that the West wanted to incite a “color revolution” in Russia.
- Putin’s premiership offered him a chance to develop a sense of history and receive a mandate from God to make Russia great again.
- Putin, by 2013, was on the opposite side from the US in regard to Syria.⁴³

⁴³ Dmitri Trenin, “Russia’s Breakout from the Post-Cold War System: The Drivers of Putin’s Course,” *Carnegie Moscow Center*, 22 December 2014.

Full sovereignty for Russia, Trenin notes, is the total exclusion of any influence on Russia's domestic politics or policies; and freedom of action on the international stage so that Russia can promote its national interests both globally and regionally. Putin would handle important decisions on foreign affairs or security policies, while relying on experts for economic and social policy decisions. Trenin adds that the maintenance of broad support for policies is an essential condition for the continuation of Russia's paternalistic political system. For the future Putin decided that he wanted Russia to be the centerpiece of a Eurasian Union.⁴⁴

With regard to Russia's values, Putin noted that he wanted to keep European views out of Russia. He appeared to believe that European countries had renounced their roots and Christian values. He banned gay propaganda and stated that unique Russian values were rooted in the Orthodox Christian tradition. These values included

- The sanctity of the family as a union between a man and a woman
- The indispensable role of religious faith
- The function of traditional religions as spiritual compasses. Values were also provided by the four established religions under Russian law: Orthodox Christianity, Islam, Judaism, and Buddhism.
- The centrality of the state among all political and social institutions and
- Patriotism.⁴⁵

Trenin noted that Putin feels leadership is not measured in terms of ideology but in terms of the attitude toward the Russian state. He considers opposition to the regime as opposition to the Russian state, even the country itself. He lashes out at elites opposing the government's policies, especially those sponsored by foreign groups. He

⁴⁴ Ibid.

⁴⁵ Ibid.

believes the liberal opposition has ties to the US, and the state-run media has branded the radical opposition as US stooges. He has tried to eliminate nongovernmental organizations engaged in “political activities” in Russia, a term very loosely defined there. Finally, Putin wants the bureaucracy to be protected from foreign influence. He wants the elites and intelligentsia to form around a platform of state-centered patriotism. Trenin notes that the Kremlin has now revitalized some organizations, patronized by the president and chaired by top officials, to reach beyond Russia’s borders⁴⁶ (at a time when Russia is restricting foreign organizations internally). School children are receiving a new view of their country’s history and adults are offered TV series about the czarist and Communist periods to demonstrate Russia’s complex history.⁴⁷

A central value remains Putin’s attempts to nail down equality and reciprocity with the US. First, Putin has actively opposed several US initiatives, such as those regarding Syria. Second, Putin is not letting charges against Russia go unanswered, such as the 2012 Magnitsky Act, which imposed sanctions on Russian officials suspected of human rights violations. Third, Putin has actively sought to create a Eurasian Economic Union in Central Asian countries, since it would allow Russia to build a power center there between the European Union and China.⁴⁸

With regard to the situation in Ukraine, Trenin delivers a compelling story of how Putin “turned the concept of a Russian world, until then a low-key, soft-power exercise, into a geopolitical project.”⁴⁹ He notes the following:

Putin first showed Ukrainian President Viktor Yanukovych the stick in the form of losses that would be sustained as a result of Ukraine’s choice in favor of

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ Ibid.

association with the EU, and then Putin offered the carrot in the form of Russian credits, stimulating Ukraine's accession to the Eurasian Economic Union. Yanukovich's suspension of the EU association process in the fall of 2013 was hailed by many Russian commentators as a major victory over the EU and the West...⁵⁰

Trenin notes that when the Euromaidan revolution in Kiev came to a climax in February 2014, Putin "put contingency plans for Crimea and Sevastopol into action" and added that he audaciously "held a referendum there, which overwhelmingly supported the territories' accession to the Russian Federation."⁵¹ The referendum, of course, was not one "overwhelmingly" supported, since no outside observers were allowed to attend. The referendum could better be described as a one-sided affair designed to make it look like there was support for the Kremlins' action.

The move into Eastern Ukraine was less successful. The Novorossiia plan aimed at unifying the eastern and southern Ukrainian provinces to oppose Ukraine's central and western regions. In return, the West imposed serious sanctions on Russia, which the latter has used as a stimulus for domestic production, especially technological research. This move was accompanied by the expectation that the elites were now expected to accept offers from their Kremlin allies in the name of national mobilization.⁵²

Finally, Trenin asserts that even though the elites are feeling uneasy about Putin's demands, the president finds his real power base from staying in touch with ordinary Russians. His secret to staying in power is not government propaganda or various forms of manipulation

⁵⁰ Ibid.

⁵¹ Ibid.

⁵² Ibid.

but the consent of the governed.⁵³ (In Russia consent can come from someone who keeps Russia independent, influential, and strong). Trein ends his long article with the following statement. It underscores the fact that Russia needs to avoid squandering its resources and losing its independence:

It needs a new, national class of elites that is based on meritocracy and devotion to the country and its people, not proximity to a leader or membership in particular clans. It also needs fair and transparent domestic regulations that are based on the rule of law and backed by independent courts and a professional law-enforcement apparatus that is free of corruption. The demonopolization of the Russian economy is also key, including streamlining profligate and inefficient state corporations and supporting responsible private businesses at all levels. And Russia should build up a modern science-technology-education complex and administrative system that is accountable to the public.⁵⁴

Of interest is that no mention of military reform or the need to secure borders is mentioned. Russia's future problems all seem to be domestic.

Pavlovskiy: Gleb Pavlovskiy, who served as an advisor to then President Dmitry Medvedev's Presidential Administration and now is the Head of the Effective Policy Foundation, discussed Russia's system of management in late December 2015. He characterized Putin's style of management as "indirect interpretation" and asserts that Putin does not want to bear responsibility for decisions, that he uses a technique of uncertainty, and that his phrases can be interpreted in contradictory ways. His is a stateless system to which orders cannot be given, and it is engrossed with deals. Indirect "hints" launch new deals within such a

⁵³ Ibid.

⁵⁴ Ibid.

system. Pavlovskiy states that in 2015 the word for this management style is absurdity.⁵⁵

He adds that in Russia there is neoprop—the machinery of “stultifying television propaganda. It pumps up the population’s loyalty by keeping the mass consciousness in a state of hysteria.”⁵⁶ This causes a loss of a sense of reality in the population. False stories are heaped on top of reality, with the latter “dissolved in fantasy” and the population/elites fail to see the risks involved as a result. There is only a small chance for the population to understand how the world actually functions as a result. Only emergency situations create a sense of discipline.⁵⁷ Pavlovskiy notes:

As a country we do not believe in anything, but we are able artificially to create a situation of belief in ourselves. We do not believe in principles or in long-term coalitions based on ideology or friendship and we are not trying to create them. ...even the former USSR republics wanted to cut loose.⁵⁸

Pavlovskiy ends his interview on a gloomy note, stating that the regime is not thinking about the future while resources are running out. He predicts some kind of transformation as inevitable for Russia. Real decisions now have to be made, not geopolitical ones, since there will be nothing more to play with: no money, no mobility, no supporters, or competent cadres.⁵⁹

Putin’s impact

NATO has attempted to engage Putin, trying to assure Russia’s leadership that NATO is not a threat to it, even bringing it into the

⁵⁵ Natalya Galimova, interview with Gleb Pavlovskiy, “The Kremlin is Living without Sensing the Country Beneath it...,” *Gazeta.ru (News.ru)*, 6 December 2015.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

NATO fold for the past several years. NATO knows that Russia is “border sensitive” and rejects any foreign activity near them. Any approach by another country or bloc elicits an immediate reaction. Russian conservatives are able to play on this fear. They are influential and feed into Putin’s distrust of the West.

Border security issues and a sense of humiliation due to Russia’s loss of power were two primary aspects of Russia’s history and psyche that strongly affect Putin’s personality and agenda. To advance the cause of grabbing Crimea, the Kremlin used intimidation (demanding Ukraine soldier defections), provocation (blocking Ukraine’s warships from leaving the harbor at Sevastopol), deception (masking the faces and unit insignia of Russian soldiers in Crimea), propaganda (see below), disregard of international norms, opportunism, and, in some rare instances, the legitimate protection of interests.

Meanwhile, US Secretary of State Kerry found it difficult to properly address this chaotic situation, unable even to discuss the actual state of affairs on the ground with his Russian counterpart Sergey Lavrov. While Kerry looked to solve problems elsewhere such as in the Middle East (Iran and Syria), Ukraine and Europe became “open seasons” for opportunists like Putin. Perhaps the chaotic state of affairs that demands US participation elsewhere is something that Putin and his staff realized in their assessment of strategy (“an evaluation of the state and development trends of the military-political situation”) and offered yet another card for them to consider and play.

Putin’s charges that the West is responsible for the conflict do not add up: other nations in the area would be supporting Russia if that were the case. When the collision between the EU and Russia became clear to Yanukovich, and it appeared the nation was siding with the EU, he reacted by traveling to Russia.

If each war has its own particular logic, as Gerasimov proposed, then the logic that Putin has used to justify his actions in Ukraine must be a focus of attention. He has ordered these interventions because he says Russia has been humiliated and treated as a second-class nation and he intends to rectify the situation. In a recent discussion forum in Sochi,

known as the international discussion club Valdai, he blamed the West, and the US in particular, for forcing their standards on other countries,⁶⁰ which, interestingly enough, is exactly what Putin is doing. Putin charges other nations or organizations with tactics that are actually his own.

It is thus ironic to hear Putin state that the US has to deal with the consequences of its own foreign policy mistakes and fight new threats,⁶¹ since NATO troops were nowhere near Russia's borders before Putin decided to intervene in Crimea and eastern Ukraine. Putin must now deal with the consequences of HIS actions and HIS strategic logic: he himself created the conditions that caused his neighbors to want NATO troops in or near their countries. Putin's actions have scared his neighbors, who now view Russia as the threat once again. It was Putin who put the heat on Yanukovych and strongly persuaded him to abandon the EU, which set off the Maidan protests.

As part of his mission to increase Russian power, Putin wants Russia to teach other countries that it does not pay to ignore the feelings or concerns of the Kremlin. He ignores the fact that Russian concerns were taken into account, and the nation was integrated into many Western organizations, including invitations to participate in NATO activities and join the G8. Perhaps deep within the Russian leadership's psyche is the necessity of maintaining not only safe and secure borders but also control over neighboring lands, even a friendly one such as Ukraine. Putin's concept of the "Russian World" is one that expands beyond its borders. He has also used his competitive logic to ascertain that former Soviet states were taken from the USSR illegally, when, in fact, the dissolution of the Soviet Union was accomplished according to international law, which he is now breaking. Finally, Putin is worried about Russians adopting what he terms the West's "quasi values," which, in his opinion, are hard for Russians to accept. Not all Russians would agree with him. Ukrainian Economic Minister Pavlo Sheremeta noted

⁶⁰ *Interfax* (in English), 24 October 2014. The next three *Interfax* citations are all different, but were published on the same day without title or author.

⁶¹ *Interfax* (in English), 24 October 2014.

that if Ukraine is successful, it will be proof that democracy, rule of law, and human rights are better for development, not the bullying with tanks and oil that Putin is professing.⁶²

Conclusion

To understand Putin, then, requires an understanding of many things, especially the context in which he was operating as well as where he fits in Kokoshin's ideology-politics-strategy triangle. Putin traveled a quick and anonymous path from being at the nexus of the mobsters, bureaucrats, and former KGB officials in St. Petersburg⁶³ to becoming the head of the Federal Security Service (FSB) and President of Russia. This quick transformation could not but have swayed his appetite for power and influence.

Ideologically, he is a man of convictions, an Orthodox believer in the sanctity and uniqueness of Russia's destiny. He appears to detest many Western values and desires to undo what to him was the greatest geopolitical tragedy in the history of mankind (the dissolution of the USSR) and to restore Russia to its former status as a great power. What Putin doesn't appear to understand is that Russia still is a great power with its vast energy resources and nuclear weapons but just not as great as in the past. Mearsheimer stresses that Putin feels betrayed by NATO enlargement, the EU's movement eastward, and the West's support of Ukraine's ousting of former President Viktor Yanukovich. NATO enlargement seems to be the biggest humiliation for Putin, especially if former General Secretary Mikhail Gorbachev was promised by Secretary of State James Baker that this would not happen. Mearsheimer recommended making Ukraine a neutral buffer zone and that the "US and its allies should abandon their plan to westernize Ukraine." This idea has its own concerns. First, whatever happened to a nation's right to make their own choice? Western nations have no "plan" to westernize Ukraine, but they would naturally like to see democracy succeed here, as

⁶² Thomas L. Friedman, "Who Will Influence Whom?" *The New York Times*, 27 April 2014, p. 11.

⁶³ *Ibid.*

it has in Poland. Second, does anyone actually think this will stop Russia from infiltrating Ukraine, or moving on Transdniester, when Putin's policy is to get back the land Russia legally lost? This argument ignores both Ukraine's right to act independently (and overstates the West's role) and Russia's aggressive role in international affairs. Russia had many "insiders" in place when Maidan took place.

Remnick argues that ideologically Putin is strangling freedom of expression in his country and imposing his own version of reality on Russia, being guided by philosophical ideals that do not comport with facts on the ground. Further, which often happens to totalitarian realists, Russia's current leaders continue to ignore one important point—that the current governments of their former union and members of the Warsaw Pact appear to hate the Russian system of control and totalitarian approach. This is a carry-over from the Cold War days, not something new. It is why these former subordinates so desperately wanted to break away from the USSR in the first place. Here Russia can be blamed for conducting the same policy of which Putin accuses the West, of treating his former allies as vassals. Russia is a strong power and not weak, as Mearsheimer contends. Further, the West has tried to bring Russia into the realm of economic prosperity, cooperation in space, and partnership activities, which are a vastly different set of conditions than Russia's continuing threats to its former friends. These threats apply not only to Ukraine but to the Baltic nations. Russia, not the West, has conducted the outright seizure of land, such as Crimea. No Western nation has done that.

Politically, Putin sets goals and accomplishes them with the use of covert and indirect actions. He is not tied to morality, but is an opportunist and strategist who fully utilizes the utility of ambiguity in his quest to accomplish a host of geopolitical goals (which include not only land grabs, but also energy resources in areas such as the Arctic). He has asserted central control over most levers of power, from gas and oil industries to law enforcement. He sees conspiracy everywhere and has pro-government media accusing non-governmental organizations of aiding unrest. As a result he has decided to kick out of Russia any foreign agency in which he smells a tendency to threaten constitutional order. Those critical of the government are labeled as a fifth column.

Strategically, Putin works out plans on a case by case basis, refusing to be tied down to a specific model of military action. In so doing he keeps his opponents off balance and unable to prepare a rational response to his unpredictable (some say irrational) and ambiguous activities. When sanctions are applied against the nation, Putin constructs counter-sanctions to offset any potential advances of the West. When Russian oil taps were turned off by the West, Putin looked east and found Chinese markets for his products. He is a patriot to most Russians, while for many Westerners he has become the preeminent threat to European security. The sending of convoys into Ukraine without permission is a direct violation of not only Ukraine's sovereignty but also of the Budapest Memorandum, which many seem to have forgotten after Crimea.

It is of little wonder, then, that Putin is labeled by some as a patriot or messianic zealot who works for the defense of his motherland and by others as a major threat to international security. Patriot, zealot, or threat—where one sits (in Ukraine, Donetsk, Moscow) and how one understands history and diplomacy shapes one's interpretation of his aspirations. However, some Russians, such as Andrey Piontkovsky, a well-known Russian political writer and analyst who has described the Putin regime as “soft totalitarianism,” believe his desire to reacquire land that was legally ceded to others is the most dangerous threat to EurAsia since the end of the Cold War. With members of Putin's military openly stating that the primary enemies of Russia are the US and NATO,⁶⁴ after all of the cooperation and engagement between and among our nations in the past twenty years, it seems he is correct.

What is most unfortunate is that Russia has not tried hard enough, it seems, to better its relations with its former colonies, since most still want nothing to do with Russia (not counting, of course, some of the ethnic Russians in these lands who adore Putin). Russia's leadership

⁶⁴ *The Moscow Times* Online (in English), 3 September 2014. Comment by General Yury Yakubov, a senior Defense Ministry official.

does not understand how it has humiliated others over the years. None of its former Warsaw Pact allies want to put up with Russian arrogance at this point in time.

Trenin, on the other hand, argues that the West has not done enough to understand Russian interests and concerns. He lays out a host of examples where the two sides lacked a common agreement on how to handle the issue. As a result, he notes, nothing was done and hostility and suspicion grew. Putin felt humiliated over the way Russia was treated and decided in 2003 to take another path. He watched how the West interacted with then President Dmitri Medvedev from 2008-2012 and saw no improvement, Trenin notes, so he decided to once again assume the presidency. He is stronger than at any point in his tenure as president and so is his military.

The West has observed Putin's rise with a mix of consternation and disappointment. Many books are being written about him by both Westerners and Russians, and most to come to the same conclusion, that he is reigning over a near dictatorship that has nothing to do with democracy.

To better understand Putin's personality, the following books have been written by noted authors and are noteworthy for their ability to offer different perspectives on Russia's president: Walter Laqueur's *Putinism*; AEI's *Putin's Russia*; Karen Dawisha's *Putin's Kleptocracy: Who Owns Russia?*; Edward Lucas's *The New Cold War: Putin's Russia and the Threat to the West*; Fiona Hill and Clifford Gaddy's *Mr. Putin: Operative in the Kremlin*; Steven Myers *The New Tsar*; and Ben Judah's *Fragile Empire: How Russia Fell in and out of Love with Vladimir Putin*.

Several Russian books show their trepidation with Putin, such as Anna Politkovskaya's *Putin's Russia*; Masha Gessen's *The Man without a Face: The Unlikely Rise of Vladimir Putin*; and Garry Kasparov's *Winter is Coming: Why Vladimir Putin and Enemies of the Free World Must Be Stopped*. Of course, in Russia (and China) there are many positive books being written about Putin as well.

Putin does not need more land. Rather, he needs to find ways to build better relations and trust with his neighbors, who continue to fear Russia. Whether the West and Putin can come together and make the situation better does not appear likely in the short term, especially since Russia is actively militarizing the Arctic, continuing to pressure Ukraine, forming a militarized bridgehead in Crimea from which to potentially move into Transdniester, interfering in Kazakhstan's affairs, and intervening in Syria and building up forces in Belarus. The latter ensures that in any conflict with Russia Ukraine could be attacked in three ways: from the north, east, and south. Russia is beset by problems, and the sooner Putin and the West can put the past two years aside (with accommodations made by both sides) the better, not only for Russia but for the rest of the world as well.

CHAPTER TWO: RUSSIA'S MILITARY STRATEGY

Introduction

The understanding and use of the term strategy varies from country to country. In China, for example, the concept involves the use of planning and guidance for a military situation as a whole, that is, strategy involves holistic planning. The goal of a strategic plan is to seek a strategic advantage or *shi* through the use of analytical judgments of a host of factors well beyond the instruments of national power that guide strategy in the US. Chinese analysts study objective factors present in the international or local environment and attempt to find ways to subjectively manipulate them to advantage. This is accomplished through the use of stratagems and results in a strategy.

For foreign analysts studying Russian strategy, it appears difficult to find an approach that can be identified as “Russian.” It is possible that “we” Westerners are part of the problem for this difficulty. Foreign analysts have suggested several straw-man concepts for Russia’s current strategic thought: hybrid, ambiguous, or nonlinear all come to mind immediately as ways to describe Russian strategy. These concepts are generated by Western analysts looking at how Russia appears to be fighting and then applying a term (usually a Western one) to describe it. Finding a *Rosetta Stone* for understanding Russian strategy may not be possible based on this line of reasoning. Worse yet, many Russian journalists have picked up the Western terms and use them to talk about Russia’s military operations, furthering the confusion.

However, when reading pure Russian military journals it becomes clear that Russian officers and military analysts do not use such Western terms when discussing Russian strategy, relying instead on home-grown concepts. Since at least 2005, the terms indirect and asymmetric have been used often to describe strategy. Another concept, for which there is a direct link from Russian generals Alexander Suvorov and Alexander Svechin to Valery Gerasimov, is that strategy depends on circumstances (Suvorov) and has a logic all its own (Svechin/Gerasimov). Gerasimov has added the concept of nonmilitary

actions to strategic thought as well. It thus seems there is some continuity in Russian strategic thought that needs to be recognized and attributed to them. Western terms are not among them.

The official definitions of strategy in books and encyclopedias certainly mark Russian strategy as being consistent and traditional, since the definitions haven't changed over the years. As with China, there are specific experiences and planning elements that help set Russian strategy apart from the strategic concepts of other nations. These elements are present in official or historically influenced definitions and in military writings. They include first and foremost two specific concepts, one lumped together as foresight/forecasting and the other being the correlation of forces (COF). The work of Suvorov, Svechin, and several other officers of renown on the logic and importance of strategic thought is also of interest. Russia's contemporary theorists describe strategy today as nonmilitary, indirect, and asymmetric. They add that strategies differ by conflict. They could range from cyber issues (Estonia) to surrogate use (Eastern Ukraine) to the use of traditional forces (Georgia).

First, there are several traditional or historical elements that help foreign audiences understand Russian strategy. The standard definitions available in military encyclopedias describe strategy as a component of military art that plans and conducts strategic operations. This official military definition has changed little in the past few decades from Soviet to Russian times. The entries on military strategy from the 1971 *Officer's Handbook*, the 1983 *Military Encyclopedic Dictionary*, and the 2003 *Military Encyclopedia*, for example, are offered in the text below to demonstrate this point.

Second, there are the foresight/forecasting and COF issues that enable the development of Russian military plans and the conduct of operations for which the nation's military strategists are well known. Such analysis is keeping pace with the digital age. A recent *Military Thought* article, for example, was titled, "The Application of Information Technology to Forecast Developmental Trends in International

Conflicts.”⁶⁵ General of the Army Valery Gerasimov, Chief of the General Staff, refers to these terms often when describing today’s concept of the changing nature of conflict.

Third, there are definitions of strategy from former renowned Russian military theoreticians, officers such as A. A. Svechin, V. D. Sokolovsky, N. V. Ogarkov, and others. The writings of these men are as important as official definitions, if not more so, since contemporary influential Russians such as Andrey Kokoshin (a former Deputy Minister of Defense), General of the Army Makhmut A. Gareev (the President of the Academy of Military Science), and even General Staff leaders reference them (especially Svechin) more often than the encyclopedic definitions when discussing strategy.

Finally, there are Russian definitions of strategy found in other works. For example, China’s 2013 book *The Science of Military Strategy* states that, according to a course at the Russian Military’s General Staff Academy, military strategy is defined as follows:

Military strategy is a component part and the supreme sphere of military art, and it is a complete system of scientific knowledge regarding the nature of modern warfare and the ways to use military means to prevent warfare, regarding the preparations by a nation and its armed forces to resist invasion, and regarding methods and forms for carrying out total warfare and military actions on a strategic scale; it is also the sphere of practical activities by the nation’s leaders and its supreme military leaders for preventing war, for having the nation and its armed forces make thorough preparations for war, and for guiding their resistance to attacks and their

⁶⁵ V. S. Kretov, “The Application of Information Technology to Forecast Developmental Trends in International Conflicts,” *Voennaya Mysl’ (Military Thought)*, No. 2 2013, pp. 45-52.

smashing of invaders when carrying out military actions.⁶⁶

In contrast to the Chinese method of defining strategy, which emphasizes the work of Marx and Engel's (as well as the ancients and Mao, of course), there is less reliance on these two giants to define the term. Objective and subjective factors are considered, but not to the same extent as the People's Liberation Army of China to define strategy. Russian strategists appear to rely more heavily on the foresight/forecasting and COF concepts when developing strategy and in their descriptions of future war, as well as on the contemporary concepts of nonmilitary, indirect, and asymmetric operations.

Since the 1960s independent military theorists who write in *Military Thought* and other military journals have discussed strategy. These authors have addressed various elements of the concept, yet their descriptions usually include the forecasting and COF components. There are definitions of strategy in concept papers such as Russia's *National Security Strategy* that add a civilian touch to the issue.

Contemporary times and events, such as Russia's recent incursions into Ukraine and Syria, have offered an implied definition of strategy from Russia's leadership that supports the focus on Svechin and further indicates he is probably more important as a strategic source today than the official definitions. This current understanding of strategy was offered in 2013 by Gerasimov (as stated earlier in Chapter One):

The renowned Soviet Military Academician Aleskandr Svechin wrote: 'It is unusually difficult to foresee the circumstances of a war...It is necessary to work out a particular line of strategic conduct for each war, and each war represents a partial case, requiring the establishment

⁶⁶ A. C. Skvovtsov, *Course on Military Strategy*, Military Academy of the General Staff of the Armed Forces of the Russian Federation, 1995. Found in *The Science of Military Strategy*, Military Science Press, 2013, p. 2.

of its own peculiar logic, and not the application of some sort of model.⁶⁷

That is, models and dictionary definitions are useful to a point, but unique logic applied to the situation at hand (along with practical experience in the use of foresight and the COF) may best demonstrate the basis for Russian strategic thinking and creativity. The concepts of indirect and asymmetric operations are explored in the next chapter, one that specifically refutes the concept of hybrid war being a Russian concept (Chapter Three recounts how indirect and asymmetric actions have been the primary method of war's conduct in Russia since at least 2005).

These varying Russian elements of strategy will be defined and highlighted in the following analysis. A general conclusion is offered on the integration of these ideas and how they should shape our view and understanding of the concept from a particular Russian vantage point.⁶⁸

Concepts and the History of Russian Military Strategy

The 1971 Officer's Handbook

The 1971 *Officer's Handbook* describes strategy as a division of military art that investigates the principles of preparing for and waging war as a whole, as well as its campaigns. It is a direct instrument of politics, and is common to all branches of the country's services within the framework of a unified military strategy. Strategy has theoretical (principles of war planning, logistical support, troop control, and

⁶⁷ 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.

⁶⁸ For a comparative view as to how strategy was understood in Soviet times, an analysis without the benefit of many unclassified sources captured since (old issues of *Military Thought*, etc.), the reader is referred to John J. Dziak's excellent 1981 study "Soviet Perceptions of Military Power: The Interaction of Theory and Practice." This work offered US analysts a definitive way for comprehending Soviet military theory and strategy that has not lost its relevance after all these years.

territorial preparation) and applied (specific questions on the preparation and execution of strategic attack, defense, and other operations) aspects.⁶⁹

Strategy is further described as a scientific theory that elaborates the fundamental methods and forms of armed combat on a strategic scale and produces war's guiding principles. Strategy's theory influences military doctrine and, at the same time, strategy implements doctrine directly in the elaboration of war plans and the preparation of the country for war. In wartime, military doctrine drops into the background somewhat, since in armed combat military-political and military-strategic considerations take the primary lead roles, depending on the specific situation. Consequently, war or armed combat is governed by strategy, not doctrine.⁷⁰

1983 Soviet Military Encyclopedic Dictionary

The 1983 *Soviet Military Encyclopedic Dictionary* stated that Soviet military strategy is determined through the policies of the Communist Party of the Soviet Union and exerts an inverse influence on policy. Its tasks are formulated through the Soviet Constitution. Marxism-Leninism is the bases for its formulation, especially its teachings on war and the army.⁷¹ Military strategy is interlinked with the country's military doctrine and is defined as follows:

A component part of military art, its highest domain, encompassing theory and the practice of the preparation of a country and its armed forces [AF] for war, the planning and conduct of strategic operations and war as a whole. The theory of military strategy investigates the patterns, mechanisms, and nature of war, the modes and

⁶⁹ S. N. Kozlov, Editor, *The Officer's Handbook*, Ministry of Defense Publishing Company, Moscow, 1971, as published in English by the United States Air Force, 1971, pp. 57-58.

⁷⁰ *Ibid.*, p. 65.

⁷¹ N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 711.

methods of its conduct. It formulates the theoretical principles of planning as well as the preparation for and conduct of strategic operations and war as a whole.⁷²

The basic points of Soviet military strategy elaborated by V. I. Lenin are as follows:

1. Guidance and direction by the Communist Party over the organization of national defense, military organizational development, and the strategic employment of the Soviet AF.
2. Decisiveness of strategic objectives, an aggressive emphasis on offense, thorough, painstaking determination of and concentration of principal efforts on decisive axes and sectors.
3. The ability to select types of strategic operations in conformity with the situation and to employ them in various combinations.⁷³

Soviet military strategy consists of interlinked strategic operations, to include air, air defense, airborne, amphibious, anti-air assault, naval, and other operations. While offensive operations are considered as the principal type of military operations, Soviet military strategy also recognized the important role of defense. Finally, Soviet military strategy evolves in conformity with changes in the world's military and political situation.⁷⁴

2003 Military Encyclopedia

Strategy is discussed officially in the *2003 Military Encyclopedia* of the Russian Federation's Ministry of Defense as having precepts "based on an evaluation of the state and development trends of the military-political situation, scientifically sound objectives, principles,

⁷² Ibid.

⁷³ Ibid., p. 712.

⁷⁴ Ibid.

guidelines and tasks, and the objective requirements and actual functioning and development capability of a nation's military organization."⁷⁵ The encyclopedia lists nine theoretical and practical aspects of military strategy at the start of the 21st century:

1. The likely nature of wars in the modern age and the ways to avert them by military means
2. The objectives and tasks of the AF in war and in strategic military operations
3. The requisite means to conduct them
4. The content, methods, and conditions for preparing for and waging war in general and the various forms of strategic actions
5. Strategic planning for using the AF in war and for using branches of the services therein
6. The fundamentals of strategic, moral-psychological, technical, and logistical support of the AF
7. Leadership of the AF in peacetime and wartime
8. Framing of the strategic requirements for building the AF and preparing a nation's economy, population, and territory for war
9. The leading states' and coalitions' strategic views and capability to prepare for, unleash, and wage war and conduct strategic military actions⁷⁶

Military strategy's tasks are determined by a country's policy and economy, where policy determines war's objectives, the preparations for war, the mobilization of resources, and the means and methods of waging war, to include creating favorable internal and external political conditions for military strategy. The economy develops from and serves policy, but has a reverse effect on policy, since government agencies can use military research to resolve issues of war preparations and conduct.

⁷⁵ Sergey B. Ivanov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 2003, Moscow Military Publishing House, Vol. 7, p. 675.

⁷⁶ Ibid.

The connection between military strategy and the economy “is manifested in the fact that the economy creates the basis for building the AF and determines their quantitative and qualitative composition.”⁷⁷ Adapting to technological advances creates favorable conditions for developing strategy. In turn, strategy has a reverse effect on the economy, since the latter’s development must take into account requirements for the AF and strategy.⁷⁸

Military strategy is also closely linked to military doctrine, and, in fact, is guided by it. Strategy’s reverse effect on doctrine is that its theoretical conclusions help frame military doctrine. What is important is that each state defines its military strategy in line with a specific constitution, laws, situation, capabilities, and geographic conditions. Russia’s military strategy is “revised to reflect socio-political, economic, and military changes” and depends on the balance of power in the world, means of armed combat, and other issues. After conducting an analysis of the nature of future war, strategy then “looks at the likely composition and objectives of the warring sides; ways to unleash and wage wars using various weapons; the forms of the AF’s strategic operations; the intensity and scope of military operations; and the possible duration, reoccurrence, and aftermath of wars.” The formulation of nonmilitary measures to avert war is also necessary. A primary strategic training task is the strategic planning of the AF’s use in war. Military strategy must continue to develop and improve to keep up with changes in the global military-political situation and the nation’s economic, scientific-technical, and military capability, and serve defensive purposes.⁷⁹

Objective-Subjective Thought’s Impact on Strategy

There is mention of the terms “objective reality” and “subjective guidance” in several works on Russian strategic thought. However, the concept does not receive the same emphasis in regard to strategy as can be found in recent Chinese military works. It is usually discussed in

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

general terms and not in relation to strategy, except for the few cases noted here. In the first few cases below, it is objective laws and factors that are discussed (and not objective reality) in accordance with subjective factors.

V. D. Sokolovsky's classic 1968 work, *Soviet Military Strategy*, noted that "The knowledge of the general laws of armed conflict makes it possible for the military leader to foresee the nature of military events in a future war and to use these laws successfully in conducting the war, rationally directing the efforts of the AF. This is the subjective aspect of the use of objective laws."⁸⁰ He noted that "The laws of strategy are objective and apply impartially to both hostile sides."⁸¹

The 1971 work in *Military Thought* titled, "Evolution in the Correlation of Strategy, Operational Art, and Tactics," by Lieutenant-General I. Zav'yalov discussed objective laws and subjective factors. He noted that the combat performance characteristics of weapons and combat equipment objectively influence military art's principles. However, behind each type of weapon stands man who determines their utilization and methods. This is a subjective factor when examining the correlation of strategy, operational art, and tactics. Reaching a decision requires taking into consideration advantageous aspects of objective conditions, with the ideal decision being where maximum correspondence is reached between objective and subjective factors. It is up to commanders to evaluate and consider the objective factors and their influence on troop actions. In a reference to the continuity of strategic thought, Zav'yalov notes that objective factors include combat capabilities, the correlation of forces, the probable character of hostile activities, and the manpower and weapons of strategic and operational echelons that can be utilized in the interests of strategy.⁸²

⁸⁰ V. D. Sokolovskiy, *Soviet Military Strategy*, (English translation by Crane, Russak, and Company, Inc.), Third Edition, 1968, p.9.

⁸¹ Ibid.

⁸² I. Zav'yalov, "Evolution in the Correlation of Strategy, Operational Art, and Tactics," *Military Thought*, No. 11, 1971, as translated and printed in *Selected Readings from Military Thought* (in English), Volume 5, Part II, pp. 121-131.

Another author, A. A. Paderin, also writing in *Military Thought* but in 2006, reference only various objective and subjective factors as relevant to military strategy, with political circumstances being the most significant.⁸³ Other books have referenced the objective-subjective thought process and imply a relationship to strategy. For example, *Marxism-Leninism on War and the Army* states that subjective factors play a major role in the military organization of the socialist type, which is conditioned by objective laws. Victory requires the “comprehensive and efficient mobilization of the objective and subjective factors promoting victory...”⁸⁴ The 1972 work, *Problems of Contemporary War*, stated that Lenin had attached great importance to determining the main threat, its main axis of attack, and the necessity to concentrate men and weapons at the decisive point and decisive moment. The authors added that such statements express Lenin’s logic and approach to a root problem of military art, namely “a dialectical combination of the objective and the subjective in the process of analyzing the complex phenomena of a military response.”⁸⁵ A. S. Milovidov stated in an article in 1973 that military-theoretical problems examine the “correlation between material and forces in modern war and the relationship between objective and subjective factors in the development of military affairs.”⁸⁶

The 1987 book, *The Evolution of Military Art: Stages, Tendencies, Principles*, had a section on objective reality and subjective thought. It stated that in analyzing military art, where strategy is the concept’s main component, the dialectically opposed interrelationship

⁸³ A. A. Paderin, “Policy and Military Strategy: A Unity Lesson,” *Voennaya Mysl’* (*Military Thought*), No. 2 2006.

⁸⁴ *Marxism-Leninism on War and the Army*, 1957, translated into English by Progress Publishers in 1972 and reproduced by the US Air Force in 1973, p. 208.

⁸⁵ A. S. Milovidov, editor in chief, *Problems of Contemporary War*, Ministry of Defense Publishing House, Moscow, 1972, as translated into English and published by the US Air Force, 1972, p. 103.

⁸⁶ A. S. Milovidov, “A Philosophical Analysis of Military Thought,” *Red Star*, Moscow, 17 May 1973, pp. 2-3, as translated into English and published by the US Air Force in *Selected Soviet Military Writings 1970-1975*, 1976, p. 73.

between objective conditions and subjective factors must be considered. Marxism-Leninism views history as a unity of that which is objective with that which is subjective.⁸⁷ Objective conditions are listed as material possibilities and real circumstances that influence the course of armed conflict, such as the state structure, population size, level of industrial production, level of science and technology, raw material availability, geographic conditions, and other qualities. Subjective factors include the comprehension of conditions and laws, mass attitudes toward war, leadership effectiveness, political awareness, level of training, and so on.⁸⁸ The author collective warned that rendering objective conditions absolute is fatal, since it rejects creativity and initiative. Exaggerating subjective factors leads to the rejection of objective laws, which always dominate subjectivity.⁸⁹ This relationship was further developed through the use of a quote from Lenin:

Marxism, wrote V. I. Lenin, differs from all other socialist theories in that it provides for a remarkable combination of complete scientific sobriety in analysis of the objective state of affairs and the objective course of evolution, and the most resolute recognition of the significance of revolutionary energy, revolutionary creativity, and revolutionary initiative of the masses—and of course, individual personalities as well...⁹⁰

War is further defined as a struggle among minds, strategies, plans, and decisions, where victory is achieved through professional knowledge, decisiveness, and the will to win. When thus analyzing the development of military art, it is necessary to account for the influence of objective conditions and subjective factors.⁹¹

⁸⁷ F. F. Gayvoronskiy, general editor, *Evolyutsiya Voyennogo Iskusstva: Etapy, Tendentsii, Printsipy* (*The Evolution of Military Art: Stages, Tendencies, Principles*), Military Publishing House, 1987, p. 12 of English translation.

⁸⁸ *Ibid.*, p. 13.

⁸⁹ *Ibid.*, pp. 13-14.

⁹⁰ *Ibid.*, p. 24.

⁹¹ *Ibid.*, p. 26.

Finally, the 1991 book, *The Culture of Military Thought*, discussed objective reality and subjective guidance in several sections and indirectly referenced strategy. The authors noted that “thought takes place in the interaction of the objective and the subjective. Surrounding reality is objective, and knowledge and a thinking person’s attitude to it is subjective.”⁹² The objective and the subjective interact via the logical means of analysis, synthesis, generalization, and so on. A commander must be able to creatively apply his knowledge of theory to real situations or to use his intuition. *It is through creativity that subjective thought can influence strategy.* Creativity produces something new and often nonexistent; thus military art becomes the fusion of creative thought and practical activity.⁹³ Further, the authors add that “the depth and accuracy of *foresight in battle* directly depends on how creatively or, conversely, how conventionally the contending sides act, and the extent to which and in what way they use stratagem, operational and tactical camouflage, and disinformation.”⁹⁴

The authors note that the laws of military science are nothing more than the subjective image of objectively existing links among the various aspects of war. A change in one results in adjustments in the other. Military practice is where the unity of the objective and the subjective occurs. Subjective goals determine the methods and nature of their actions. Knowledge is based on personal experience—one cannot learn to swim without being in the water.⁹⁵

Thus, in the development of Russian strategy, objective reality would be represented by the situation before commanders, and subjective guidance would be the ability of commanders to creatively manipulate the factors of that reality, which include, but are not limited to the concentration of forces in a crucial location at a crucial time; surprise;

⁹² F. F. Gayivoronskiy and M. I. Galkin, editors, *Kul'tura Voennogo Myshleniya (The Culture of Military Thought)*, Moscow Military Publishing House, 1991, p. 12.

⁹³ *Ibid.*, p. 34.

⁹⁴ *Ibid.*, p. 83.

⁹⁵ *Ibid.*, pp. 252, 255, 282.

troop interaction; comprehensive support; *correlation of engaged forces and weapons*; time and space of the engagement; switches or leaps from one condition to another; elements of randomness, known as the uncertainty factor; pace of advance; time to reach an objective; command and control capabilities; reconnaissance; electronic or cyber warfare means; logistic support; terrain; time of year and day; weather; and so on.⁹⁶ Many of these factors will be highlighted again below in major General Ryabchuk and Colonel Tyushkevich's considerations of a commander's creativity and the COF, which again demonstrates continuity in military thought.

History of Russian Military Strategy

In 2000 Russian General-Major V. A. Zolotarev served as the main editor of a book on the history of military strategy in Russia. In it he highlighted a number of issues discussed above. What this reliance on former thought indicates is that even after a few decades, the basic template to create strategy has not changed much in Russia. This in spite of the fact that Russia's predecessor, the Soviet Union, had disappeared, causing existing military-political and strategic tenets to be, for all intents and purposes, obliterated. The changing military-political circumstances brought about by the end of the Cold War resulted in rethinking seemingly indisputable strategic postulates. Enemies became partners, and partners became neutral or potential enemies.⁹⁷ Yet old templates continued to be used.

Zolotarev states that military policy correlates to a concrete situation and the political goals that arise from it. A military organization is formulated for the situation, military doctrine is formed, and a national military strategy is determined and conducted in accordance with policy. Special features of Russian strategy include its national originality; a reliance on its own national strengths; a continental point of view; the use of peripheral directionality; the sequential neutralization of threats

⁹⁶ Ibid., pp. 170, 172.

⁹⁷ V. A. Zolotarev, editor, *Istoriya Voennoy Strategii Rossii (The History of Military Strategy in Russia)*, 2000, Moscow: Kuchkovo Pole, pp. 497-501.

from the West, East, and South; the proportional development of forces, with emphasis on ground forces; decisiveness of actions; and the flexible combination of offense and defense and positional and maneuver forms of struggle.⁹⁸

Military strategy includes the theory and practice of preparing the country and its armed forces for war, as well as the planning and waging of war and the conduct of large-scale strategic operations. Theory studies the laws and nature of warfare and methods of waging it in order to achieve political goals. With regard to practical activity, military strategy helps determine strategic missions under specific conditions and the forces and means to conduct them. Military strategy helps prepare the armed forces, theaters of operations, the economy, and the population for war as planners perceive it. Enemy capabilities are also studied.⁹⁹

Strategy can be used to wage war or to conduct large-scale operations. They differ in scale, how they are used, the content of missions, and how they are examined. A war strategy involves long-range political and military goals, a priority listing for their achievement, and the forms and methods of their preparation and conduct (development of logistics, deployment organization, campaign determinations in the political, diplomatic, economic, and strategic areas, and economic and military mobilization plans).¹⁰⁰

The strategy of the conduct of operations is concerned with warfare's components. It helps determine the operational systems that are required of a state's armed forces when conducting different wars. Plans are conceived for coordinating the efforts of various branches of the armed forces and for preparing theaters of military operations and the organization of command and control issues.¹⁰¹

⁹⁸ Ibid., pp. 6-8.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

Zolotarev added that military strategy now is formed under a complex set of varied objective and subjective factors, with political factors being the most important. To him, some of the objective factors operate in a diametrically opposed direction, with some adding a resolute nature to strategy, while others introduce uncertainty. The latter include separatist aspirations becoming more exacerbated and a clash of interests along a North-South line. Russia's drop in its military-economic potential is another factor that has placed it behind in the development of a strategy to confront threats to the nation. Therefore, strategy at this juncture (the year 2000) must be based on carrying out just the most necessary local tasks with limited force and economic means. Interestingly, even at this early juncture Zolotarev writes that the extensive buffer zone that has been created between Russia and its former allies in the Warsaw Pact hides serious negative consequences. The only example he offered was that the spatial corridors that brought Russia to the Baltic Sea and the Black Sea, for which the Russian Empire fought for many centuries, have narrowed. He adds, however, that historically the more active Russia's foreign expansionist policy became, the greater the role that military force would play. In light of recent incursions into the Arctic, Georgia, Ukraine, and Syria this thought pattern seems to have remained in place.¹⁰²

Finally, Zolotarev states that these new objective factors entail a reorientation of many fundamental military-strategic concepts for Russia. Subjective factors "are also substantially influencing the development of contemporary Russian military strategy; in a number of instances their mutual activity is decisive."¹⁰³ Among several distinguishing features of Russia's military strategy over the years, the employment of different forms, types, and methods of military operations seems to be most relevant, which seems to support Gerasimov's notion that each conflict has a "logic all its own." This may be a direct result of the use of creative thought to produce different forms, types, and methods of employment. How Russia goes about determining its analysis of the nature of war

¹⁰² Ibid., pp. 6-8, 497-501.

¹⁰³ Ibid.

should be studied closely by analysts, as it results in the use of new methods and procedures for strategic operations.¹⁰⁴

Foresight/Forecasting and the Correlation of Forces

Russia's military encyclopedia defines foresight (*predvidenie*) in the following manner:

The process of gaining knowledge of possible changes in the area of military affairs, determination of the prospects of their future development. Knowledge of the objective patterns and mechanisms of war and dialectical-materialist analysis of events taking place in a given specific historical situation constitutes the basis of scientific foresight.¹⁰⁵

With regard to the elements of foresight, it was noted that there are three: prediction, planning, and management. Foresight's complexity is determined by risk, chance factors, and insufficient information on an enemy.¹⁰⁶

Forecasting or prognostication (*predskazanie or prognozirovanie*, with both terms used interchangeably it seems) is defined in the following manner:

In military affairs, the scientifically substantiated determination of the prospects of future development of armed forces, military equipment, military art, the probable course and outcome of individual wars. A component part of foresight in military affairs.¹⁰⁷

¹⁰⁴ Ibid., pp. 551-552.

¹⁰⁵ N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheski Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 585.

¹⁰⁶ Ibid.

¹⁰⁷ N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheski Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 593.

Some of the principal domains of forecasting are military-strategic, operational, tactical, military economics, and military-technical. It is also a term associated with prediction.¹⁰⁸

One Russian who wrote on foresight/forecasting was Major General V. D. Ryabchuk. In one article, co-written with Colonel V. I. Nichipor, he noted that the famous Soviet theoretician M. V. Frunze stated that foresight in military art is dependent on three things: a clear understanding of the nature of future war [author: definition of strategy]; the correct understanding of the forces available to a potential enemy [author: COF]; and an understanding of friendly resources [author: COF]. A commander's military art manifests itself in the ability to choose from among diverse methods and find the most suitable one for each particular case [author: each conflict has a logic all its own]. Here the intellectual confrontation is most important, where commanders seek to control not only battle but the enemy as well [author: reflexive control, defined in the next chapter]. Working out a correlation of relative strengths becomes important. It is imperative that commanders "develop new unconventional control methods, forms and techniques of training the commander for effective purposeful battle control, and the achievement of victory over the smart, powerful, highly professional, and actively operating enemy."¹⁰⁹ Ryabchuk and Nichipor note that the famous Russian commander A. V. Suvorov, stated that a senior officer should "not depend on anything, but act according to the circumstances and always promptly."¹¹⁰ Forecasting and foresight ensure effective control of battle.

In a later article devoted to military science and forecasting, Ryabchuk discussed in greater terms the intellectual confrontation, further described as the fact that "thought is the first to join a battle. Indeed, thought is a weapon; ... On the other hand, thought also appears

¹⁰⁸ Ibid.

¹⁰⁹ V. D. Ryabchuk and V. I. Nichipor, "The Role and Place of Forecasting and Foresight in the System of Planning Operations and Combined-Arms Battles," *Voennaya Mysl' (Military Thought)*, No. 10 2007, pp. 61-67.

¹¹⁰ Ibid.

to be a basis of the scientific potential of the state and a background for its forecasting development.”¹¹¹ He added that, regretfully, calculations still need to be made on the intellectual potentials of opposing sides, just as there are with the sides’ information or other capability measurements.¹¹²

In Ryabchuk’s opinion, the Russian Academy of Military Science, headed by M. A. Gareev, is mainly focused on forecasting and defining the analytical and system priorities for future wars and any other military or nonmilitary form of armed and unarmed confrontations. At one conference in 2008 Gareev put forward as a major result of the session that it was necessary to put into practice “a long-term strategic action plan which would provide for the assessment of advanced development of the geopolitical situation in the world, and the role and place of Russia in the international community...”¹¹³ The development of the geopolitical situation around Crimea and eastern Ukraine comes to mind.

Ryabchuk referred to the term “correlation of forces” in his article, but his focus was on the lack of an intellectual confrontation or correlation that should be under consideration. Colonel S. Tyushkevich further discussed the correlation of forces (COF) concept in a 1969 article in *Military Thought*. He noted that the COF is connected with strategic planning and is developed both during the prewar period and while a war is in progress. The correlation determines the plan for war and for operations, as well as the purpose of strategy and operational art.¹¹⁴ Further

¹¹¹ V. D. Ryabchuk, “Problems of Military Science and Military Forecasting under Conditions of an Intellectual-Informational Confrontation,” *Voennaya Mysl’* (*Military Thought*), No. 5 2008, pp. 67-76.

¹¹² Ibid.

¹¹³ Ibid.

¹¹⁴ 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.

In peaceful conditions, determining and guaranteeing the required correlation of forces is connected with the development and implementation of programs for economic and military organization, and the solution of many theoretical and practical problems for the comprehensive preparation of the armed forces for a war which the imperialists may unleash on the countries of the socialist community.¹¹⁵

Developing sound decisions for the conduct of operations can only be achieved by the comprehensive evaluation of forces of the contending sides and the determination of creating a favorable COF. This evaluation includes both quantitative and qualitative considerations and, in addition to military-technical evaluations, includes economic, socio-political, and spiritual factors. A COF determination requires a calculation of the entire aggregate of capabilities.¹¹⁶

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. Correct calculations and estimates of relative strengths help make substantiated decisions, established in a timely manner and used to maintain the required superiority over the adversary in selected sectors. 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

¹¹⁵ Ibid., p. 61.

¹¹⁶ Ibid., pp. 61-63.

entire area of operations, in the main sector and in other sectors.¹¹⁷

The definition, while accurate, does not provide the depth of the content of the concept. Tyushkevich further details several factors beyond the quantity and quality issues that are important to consider when conducting a COF analysis:

1. Even a significant superiority is nothing but a favorable opportunity. The decisive role is played by the skill of commander's ability to exploit it.
2. With conventional forces, the COF usually can only change slowly. The use of nuclear weapons will change the COF immediately.
3. Timely logistic deliveries are a "most essential" element in maintaining a given COF.
4. The most effective way to change the COF is through the offensive.
5. Commanders and staffs must prepare ahead of time substantial forecasts that enable their forces to anticipate events, which will facilitate corrections to plans during military operations.
6. The COF is a specific function of time, as capabilities change continuously during a conflict.
7. 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.
8. In addition to evaluating quantitative and qualitative factors, commanders can also uncover hidden factors that have the capability of influencing the COF.
9. All of the above factors capable of impacting the COF are objective opportunities that are dependent on a

¹¹⁷ N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 691.

commander's use of his subjective factor to take advantage of them.¹¹⁸

It remains likely that Russian military strategists continue to use these methods of foresight/forecasting and the COF, but to what degree is unknown. In an article in 2014, it was noted that computations of the correlation of forces was first pioneered in the 1980s by L. V. Zakharov but “an improved version of the same is used in various calculations of the RF MOD research organizations.”¹¹⁹ Perhaps more importantly Gerasimov still uses the terms in his descriptions of how to design an efficient Armed Force's contingent for Russia and perhaps that is all that is really needed as proof of the continued use of the concept. He notes that an efficient contingent depends in large degree on finding an optimal correlation of forces and means of armed struggle; and that another important task is the forecasting and assessment of military threats.¹²⁰ Thus the concepts appear to be embedded in the military's DNA when analyzing opposing forces or threats. New elements (cyber, hypersonic missiles, UAVs, etc.) are likely now part of a new correlation of assets. Also of particular interest is how the intellectual confrontation was stressed by several writers in the discussion above even over the technical confrontation. Thinking is paramount in this consideration of how strategy will be formed and implemented.

¹¹⁸ Ibid., pp. 64-70.

¹¹⁹ S. G. Chekinov and S. A. Bogdanov, “Military Futureology: Its Origin, Development, Role, and Place within Military Science,” *Voennaya Mysl' (Military Thought)*, No. 8, 2014, p. 26.

¹²⁰ 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.

People and Policies

Renowned Russian Military Theorists: A Look at the Work of A. A. Svechin

Alexander Andreyevich Svechin was born in August 1878 and lived until 1938, when he was executed on the orders of Stalin and Molotov for allegedly participating in a counter-revolutionary organization and training terrorists. He was not only an outstanding military leader but also a professional writer. His most famous book was aptly titled *Strategy*. It was translated into English in 1992. In this work Svechin offered the following definition of strategy:

Strategy is the art of combining preparations for war and the grouping of operations for achieving the goal set by the war for the AF. Strategy decides issues associated with the employment of the AF and all the resources of a country for achieving ultimate war aims.¹²¹

Strategy is an extension of politics. One who understands political economy, logic, grammar, and strategy can protect others from many errors in working in any of these fields.¹²² Clear strategic thinking enables the accomplishment of operational missions. Strategy begins “when we see a series of successive goals, or states, toward the achievement of the ultimate goal of the war. Strategy must look forward and take the very long term into consideration. The strategist advances by operations, and these strategic steps extend several weeks or even months in time.”¹²³ Svechin appears to agree with Suvorov, who noted that tactics is for today, strategy for tomorrow.

Politicians, Svechin noted, must have an idea of what is feasible for strategy in order to achieve political goals. Even in peacetime,

¹²¹ Aleksandr Andreevich Svechin, *Strategy*, 1927, in English, translation provided by East View Publications, 1992, p. 69.

¹²² *Ibid.*, p. 71.

¹²³ *Ibid.*, p. 73.

military capabilities must be part of political calculations. This requires strategic training for all leaders, military and civilian, and is particularly important for military commanders, regardless of the leadership position they occupy. For example, corps commanders in Svechin's time had to understand that their decisions would provide a strategic slant to an operation.¹²⁴ He adds further that

Strategy is a discipline in which success depends very little on the memorization of precepts issued by a school or the assimilation of logical constructs contained in textbooks on strategy. A unity of doctrine based on the unity of strategic guidelines is illusory. In strategy the center of gravity lies in developing an independent point of view which primarily requires careful homework.¹²⁵

A course on strategy should lay the groundwork for subsequent independent thought. Strategy is a contemplation of military history and not just theory and speculation. It requires historical knowledge based on a strategic view. Of course, strategy also requires knowledge of the present, since it endeavors to make a prediction about the future. Interestingly, Svechin notes that the “entire globe is becoming a completely strategic landscape in which the art of war is in many respects switching to new methods and techniques.”¹²⁶ Such a thought is hauntingly familiar to those of us living in the cyber age.

Andrey A. Kokoshin on Svechin

Andrey Kokoshin has served as Deputy Minister of Defense and as the Secretary of the Security Council of Russia. He is a historian of renown who writes that Svechin was adamant about the close correlation between politics and strategy. Politics is the art of orienting struggles to carry out programs of a specific group, the art of maneuvering people. It

¹²⁴ Ibid., p. 74.

¹²⁵ Ibid., p. 76.

¹²⁶ Ibid., p. 77.

does not usually take a direct path to accomplish its goals. Rather, there are stages that must be achieved on the way to a goal. He noted that

Strategy must broadly look ahead and take into account the future in a very broad perspective. Strategy takes its steps by means of operations; these steps of strategy stretch out in time for several weeks, even months. The strategist should thoroughly take into account the situation and its possible changes in order to not change the foundations of his directives when the operation has reached only the beginning of its development. The strategist must be forward-thinking so that operational and tactical art can work systematically.¹²⁷

E. I. Martynov, a Svechin colleague and contemporary, adopted Moltke the Elder's formula that "politics must establish the political goal of the war and then provide strategy with complete freedom of action."¹²⁸ Svechin, for his part, assigned an important role to solving problems associated with demoralizing the enemy and maintaining unity in one's own nation. This reminds one of Russian actions during Ukraine, where the "enemy" (Ukraine's new government) was castigated as fascists and neo-Nazis, while on the home front the propaganda war was unrelenting, underscoring the righteousness of Russian actions and offering no counter-positions. According to a Russian encyclopedia, fascism, as defined for Russians is "A form of open terrorist dictatorship of the imperialist bourgeoisie which relies upon the forces of anti-Communism, chauvinism, and racism, with the goal of destroying democracy and suppressing the worker movement, as well as preparation for aggressive wars."¹²⁹

¹²⁷ A. A. Kokoshin, "On the Interrelationship among Politics, Military Strategy, Operational Art, and Tactics," in *Aleksandr Andreevich Svechin: Prominent National Military Theorist and Commander. On His Life, Ideas, Works, and Legacy for the Present and Future*, Moscow University Publishing Company, 2013, pp. 157-189.

¹²⁸ Ibid.

¹²⁹ S. I. Ozhegov, *Slovar' Russkogo Yazyka (Dictionary of the Russian Language)*, 1984, Moscow, p. 738.

Further, since strategy is “not indifferent to some resolution or another of economic tasks,” and since war preparation strains the economy, then this forces “other methods to be employed.” Russia took Crimea without much fuss or use of forces and national economic assets. The same transpired in Ukraine, using surrogates to stir up trouble on the Ukrainian side of the border. Yet another point mentioned by Kokoshin was Svechin’s desire to damage an enemy’s economic potential,¹³⁰ which the taking of eastern Ukrainian industrial areas and Crimea’s offshore oil assets certainly did, not to mention imposing more costs on oil and gas agreements and bypassing agreements made over Crimea regarding the same issue of energy.

Kokoshin noted that correctly establishing goals in politics and military strategy is a rare phenomenon, yet it was accomplished in Ukraine. Putin and his apparatchiks apparently proceeded to correctly analyze the following state of affairs precisely as Svechin meant it:

A politician must have a correct sense of the correlation of his and the enemy’s forces...[which] requires extremely mature and profound judgment, a knowledge of the history, politics, and statistics of both warring states, and a certain competency regarding basic military issues...The goal will ultimately be formulated by the politician only after an appropriate exchange of opinions with strategists; it must aid strategy, and not make strategic decisions difficult.¹³¹

Kokoshin quotes Svechin as saying that strategy is one of politics’ most important weapons. Politics must consider both the calculations of friendly and hostile states capabilities and an assessment of the intention of both possible enemies and neutral friendly states. Political goals can be formulated as a result of having taken into account

¹³⁰ Kokoshin.

¹³¹ Ibid.

all military-strategic circumstances by realistically assessing the correlation of forces and means of the sides, the level of military leadership of the sides, and quality of operational-strategic command and control and intelligence. Svechin is against the emancipation of strategy from politics, and he notes that strategy is a continuation, a part of politics. Strategy is the “art of an army’s entire higher command personnel” and not of some chosen elite. Operational leaders must raise their level of thinking to the strategic level as well.¹³²

Kokoshin believes history teaches that the development of military strategic issues is perhaps the most difficult problem in military art, military affairs, and military science. Developing operations that flow toward a goal is difficult to manage, since forward thought must evolve under the guidance of a broad ideological outlook. Everyone must be familiar with strategy, and it must not be allowed to remain in the hands of an elite staff. One cannot study strategy when a command position opens. It must be a continual process. The historical past, one’s own experiences, and the contemporary evolution of military affairs must all be considered continuously over an officer’s career, and not just at a war college. He adds that, in regard to the study of a political-military or military-strategic problem, Svechin’s level of knowledge has not been surpassed to date in Russia.¹³³

In the contemporary political situation, Kokoshin notes, economics, diplomacy, and information resources are the most important components for the employment of military force. The latter’s proper use is now being felt at the political-military and military-strategic planning levels and even at the operational and tactical levels. Svechin was one of the first to note that some tactical actions under certain political circumstances can take on a strategic scope. This was an original thought for his time. He came out against the idea of “service strategies,” however. His understanding was that only the services could perform

¹³² Ibid.

¹³³ Ibid.

operational missions, so naval operational art was understood but not naval strategy.¹³⁴

Svechin, Kokoshin notes, believes that in extreme circumstances the strategist should “dictate the basic line of behavior for operational art and...concentrate in his own hands direct control of it.”¹³⁵ Strategy pursues goals and tactics and resolves tasks; the essence of strategy is associated with perspective in time, while tactics seldom or never have a time measurement. Svechin described strategy in many ways. One definition that relates to his understanding of operational art follows:

Strategy is the art of combining preparation for war and a group of operations to achieve a goal advanced by a war for the AF...If operational art must take into account the capabilities presented by the front’s rear area, then the strategist must take into account the entire rear area—his own and the enemy’s, presented by the state, with all its political and economic capabilities...The strategist will be successful if he correctly assesses the nature of the war as dependent on various economic, social, geographic, administrative, and technical conditions.¹³⁶

Earlier, Svechin had defined strategy as the “art of waging war, encompassing that part of its issues, the resolution of which depends on the nature of the war and the economic, political, geographic, and/or supply conditions.”¹³⁷

Gareev on Frunze and Svechin

General of the Army and Doctor of Military Science Makhmut Akhmetovich Gareev, the President of the Academy of Military Science in Russia, is one of the most important theorists and writers on military

¹³⁴ Ibid.

¹³⁵ Ibid.

¹³⁶ Ibid.

¹³⁷ Ibid.

thought in Soviet and contemporary times. Among other things, he is credited by Russian officers as the mind behind the Soviet concept of the operational maneuver group. He has remained as an advisor to several Soviet and Russian presidents, to include President Putin, even though he is in his 90s. At the parade marking the 70th anniversary of the end of World War II, Gareev was seated on the reviewing stand between Putin and Kazakstan's President Nursultan Nazarbayev. If there is a Russian theorist whose ideas most closely resemble the strategic thought of the now retired US specialist in the Office of Net Assessments, Andrew Marshall, it is Gareev.

Gareev first came to the attention of many US analysts in 1985 when he authored a book on Soviet theorist Mikhail Frunze. In that work he noted the following about strategy:

The theory of strategy...investigates the military-strategic nature of war, the laws, principles, and methods of armed combat on a strategic scale, and elaborates recommendations on preparing the nation in military terms, the forms and methods of strategic operations, the problems of controlling the Armed Forces, the questions of considering and utilizing the moral-political and economic capabilities of the state in the interests of conducting armed combat, and the organization of strategic support.¹³⁸

When referencing the essence and general laws of war and the army, he noted that historical materialism studies the relationship of the objective and subjective in a war and in military affairs;¹³⁹ and that the relationship of objective and subjective factors expresses the decisions and actions of

¹³⁸ M. A. Gareev, *M. V. Frunze—Voennyi Teoretik (M. V. Frunze: Military Theorist)*, Moscow Military Publishers, 1985, p. 402.

¹³⁹ *Ibid.*, p. 395.

commanders to the specific situation. This, he notes, is a major law of military art.¹⁴⁰

Gareev is clearly a supporter and admirer of Svechin's works. He noted in a 1998 article that the latter's ideas were always keen, novel, and original. Gareev noted that in 1922 and 1923 Svechin published *A History of Military Art*; in 1927 *Strategy*; and in 1927 and 1928 the *Evolution of Military Art* in two volumes. In 1935 he wrote on *Clausewitz* and in 1937 on *20th Century Strategy at the First Stage*. Thus Svechin wrote much with which to impress Gareev.

Gareev writes that Svechin could foresee the nature of future war, understood that there is a close correlation between politics and military strategy, and felt that relations among the army, authorities, and society were exceptionally important. He was against commissars supervising decision-making, which went against the principle of unity of command. He produced an atmosphere for creative freedom and new ideas in the area of military-scientific thought and stressed the importance of objective investigations, estimates, and conclusions based on existing reality rather than theory alone. Svechin believed Russia must prepare for both local and large-scale wars. He proposed both annihilation (offensive) and attrition (gradually wearing down an opponent, which Svechin favored) strategies, noting that the two could not be used in tandem. He considered himself a follower of Hans Delbruck and not Marx, which caused him serious trouble.¹⁴¹

Renowned Russian Military Theorists: A Look at the Work of V. D. Sokolovsky

Vasily Danilovich Sokolovsky was a key member of the Soviet war command during the Second World War. He was a good planner and leader who was trusted by the high command. Sokolovsky became the Deputy Minister of Defense in 1949 and Chief of the General Staff in

¹⁴⁰ Ibid., p. 148.

¹⁴¹ M. A. Gareev, "Lessons of A. A. Svechin for Our Days," *Military Thought* (English Edition), Vol. 7, No. 4, 1998, pp. 35-49.

1952. He became widely known in the West in 1962 after his book, *Soviet Military Strategy*, was published. The book allegedly contained hard-to-get detail on Soviet thinking about war in general and nuclear war in particular. He attained the rank of Marshall of the Soviet Union.

Sokolovsky makes it clear in *Soviet Military Strategy* that politics guides the use of military strategy. He writes that “the influence of politics affects the determination of general and particular strategic aims, the general character of state strategy, and the selection of forms and methods of conducting war.”¹⁴² Political actors also choose the most propitious moment when to start a conflict in accordance with strategic considerations. It follows that out of political decisions and the development of policy military doctrine is created, which expresses the views of the state regarding the political evaluation of future war, the state’s attitude toward war, the nature of future war, how to prepare the country in the economic and moral sense for war, and how to organize and prepare the AF with the methods it needs to wage war.¹⁴³ Doctrine is also influenced by a nation’s geography, its economic status, and its relations with neighboring states.¹⁴⁴ Military strategy is subordinate to doctrine. It utilizes this overall policy development and more concretely examines the nature of future war, a country’s preparation for war, and its organization and methods for conducting warfare.

Sokolovsky notes early in his work that military experience has been the prime mover in developing military strategy.¹⁴⁵ In addition, military strategy includes “theoretical predictions of possible conditions, of methods of conducting armed conflict, and the leadership of war in the future.”¹⁴⁶ Strategy is thus guided by theory and practice and it is also closely connected to other social and natural sciences (economics,

¹⁴² V. D. Sokolovskiy, *Soviet Military Strategy*, (English translation by Crane, Russak, and Company, Inc.), Third Edition, 1968, p. 16. The translator and analyst for this book was Harriet Fast Scott, one of America’s most prominent and respected Soviet analysts.

¹⁴³ *Ibid.*, p. 38.

¹⁴⁴ *Ibid.*, p. 39.

¹⁴⁵ *Ibid.*, p. 5.

¹⁴⁶ *Ibid.*, p. 7.

politics, scientific and technical factors, cybernetics, etc.). Further, Sokolovsky notes that the content of strategy is not constant but rather is dependent on a given time, the means available, the nature of future war, the methods and means of conducting war, the problems placed before it by state policy, and the views of a potential enemy, which again seems to echo Gerasimov's later notation that each conflict has a logic all its own.¹⁴⁷ Yet another focus of strategy is examining questions related to the preparation of the country for any potential war.

Sokolovsky defines military strategy in the following way:

Military strategy is a system of scientific knowledge dealing with the laws of war as an armed conflict in the name of definite class interests. Strategy—on the basis of military experience, military and political conditions, economic and moral potential of the country, new means of combat, and the views and potential of the probably enemy—studies the conditions and the nature of future war, the methods for its preparation and conduct, the services of the AF, and the foundations for their strategic utilization, as well as foundations for the material and technical support and leadership of the war and the AF.¹⁴⁸

In Sokolovsky's opinion, modern strategic means of armed conflict make it possible to attain overall victory without the sum of partial successes (that is, on the levels of operational art or tactics). The new concept (in 1968) of strategic deployment is related to the creation of strategic formations of the AF that are developed prior to the outbreak of hostilities and are designed according to a war plan and to the conditions for unleashing it.¹⁴⁹

¹⁴⁷ Ibid., p. 8.

¹⁴⁸ Ibid., p. 11.

¹⁴⁹ Ibid., p. 14.

Sokolovsky defines the study of future war through the eyes of military strategy in the following manner:

Military strategy examines the questions of the preparation of the AF for war, where the main attention is given to the scientific basis of planning, taking into account political requirements, economic potential, and scientific and technical accomplishments; the organization of strategic intelligence; the composition of the AF required to solve strategic problems; the composition and method of preparation of strategic reserves, the accumulation of material reserves, and the preparation of the territory as a theater of military operations.¹⁵⁰

Two interrelated factors to which Sokolovsky paid special attention in his book were economics and the moral factor in war. With regard to economics, it was stated that economic conditions determine the combat methods of the AF, that is, how war is conducted (the military's strategy). Friedrich Engels is quoted: "Armaments, composition, organization, tactics, and strategy primarily depend on the level of development of industry and the means of communication achieved at a given moment."¹⁵¹ The economy takes strategy into consideration as it develops. This tendency could result in spending money specifically on strategic weapons or could even result in providing the financing to capture strategically important resources or entire regions. States' economies can even be reorganized in the event of placing war onto a military footing.

Further, a highly developed moral factor, influenced by a successful economy, is a most important factor affecting military strategy, since a man's fighting spirit is thereby enhanced. He has something positive to fight for. Even Lenin noted that the moral factor

¹⁵⁰ Ibid., pp. 9-10.

¹⁵¹ Ibid., p. 26.

has an economic base, since the material and economic conditions of a nation engender strong patriotism and the readiness of people for self-sacrifice. That is, high morale can result in the selection of a specific strategic option, whereas low morale may result in a different option. In the past, low morale in some nations has renounced the use of planned offensives. Since war makes contradictions more acute, the morale of an army must be constantly monitored during a conflict.¹⁵²

Renowned Russian Military Theorists: A Look at the Work of N. V. Ogarkov

Born in 1917, Ogarkov was promoted to Marshal of the Soviet Union in 1977. Between 1977 and 1984 he was Chief of the General Staff of the Soviet Union and became known for his extensive writings and involvement in several military issues, such as the shutdown of Korean Air Lines flight 007 in 1983. He was viewed as a very competent and worthy opponent by many in the West. Ogarkov strongly supported the concept of the armed forces undergoing a revolution in military affairs, and thus advocated transforming them with new technologies.

In his 1982 book, *Always in Readiness to Defend the Homeland*, Ogarkov discussed the basics of dialectical thought. He noted that the unity of scientific objectivity and Communist party-mindedness was the most important principle of Marxism-Leninism. This requires an “organic unity of scientific objectivity and a high-principled assessment of these phenomena and processes from the position of the worker class.”¹⁵³ Scientific objectivity, he writes, presupposes any situation as it exists in reality, revealing conflictive trends in its development without allowing any one-sidedness and subjectivism.¹⁵⁴

The closest Ogarkov comes to mentioning strategy in this book is when he discusses the development of the art of war and the general

¹⁵² Ibid., pp. 33-37.

¹⁵³ N. V. Ogarkov, *Vsegda v Gotovnosti k Zashchite Otechestva (Always in Readiness to Defend the Homeland)*, Military Publishing House, 1982, p. 20.

¹⁵⁴ Ibid.

characteristic patterns that have emerged in the recent past (that is, the 1970s and early 1980s). These patterns are the impact of the scientific and technological revolution on the evolution of military affairs, the acceleration of the development of equipment and weapons, the increase in the importance of strategic weapons, and the complex nature of troop control mechanisms.¹⁵⁵ Developments take place as a rule by the entire aggregate of Marxist-Leninist laws, since each exerts its own characteristic. To strengthen a nation's defense capability, coordination must take place between the mobilization deployment capabilities of the armed forces and the national economy.¹⁵⁶

Ogarkov was more specific about strategy in his 1985 book, *History Teaches Vigilance*. He stated that military strategy encompasses the “theory and practice of preparing the armed forces for war, and the planning and conduct of strategic operations and the war as a whole.”¹⁵⁷

Further, military strategy is subordinated to and guided by military doctrine. Military doctrine has two aspects, socio-political and military-technical. The former includes political objectives and the nature of a potential war, and the latter includes questions on constructing, equipping, and supporting the armed forces. Political objectives must correspond to the state's military potential and capabilities.¹⁵⁸ The basic postulates of military strategy help refine doctrinal views and directives.

Ogarkov added the following items related to the development of military doctrine. The list serves as good reminder of doctrine's components in the mid-1980s and its relation to strategy is obvious from the preceding discussion:

¹⁵⁵ Ibid., p. 31.

¹⁵⁶ Ibid., p. 44.

¹⁵⁷ N. V. Ogarkov, *Istoriya Uchit Bditelnosti (History Teaches Vigilance)*, Military Publishing House, 1985, p. 40.

¹⁵⁸ Ibid., p. 54.

1. What is the probability of future war and with what enemy will it be necessary to deal?
2. What nature will the war take, which the Soviet Union and its armed forces will be required to wage?
3. What are the objectives and tasks which may be assigned to the armed forces in anticipation of such a war?
4. What armed forces are required in order to achieve the established objectives?
5. What military structuring should be achieved and how should the army and country be prepared for war?
6. What war methods will be used if war breaks out?¹⁵⁹

Ogarkov adds that military strategy derives from the objective laws of war revealed by the founders of scientific Communism.¹⁶⁰ Marxism-Leninism is the ideological and theoretical base of Soviet military doctrine and is based on the laws and postulates of historical and dialectical materialism.¹⁶¹ Ogarkov notes that the general law of materialist dialectics “is that various articles, phenomena, and processes, both in nature and in society, do not exist in isolation, in and of themselves.”¹⁶² These issues are linked and constantly changing, since they are constantly interacting. External factors such as an economic system, a state’s capabilities, and the level of development of science and technology in a country interact with internal linkages and relationships in war such as the correlation of forces of warring parties, the technical level of their equipment, and so on, which can lead to the success or failure of military operations.¹⁶³ For example, the increase in the size of a nation’s armed forces led to the increasing spatial scope of military operations, and resulted in a new form of military actions, the operation, defined as an aggregate of battles and engagements, “separate

¹⁵⁹ Ibid., p. 40.

¹⁶⁰ Ibid.

¹⁶¹ Ibid., p. 50.

¹⁶² Ibid., p. 28.

¹⁶³ Ibid., p. 29.

in time and space, but unified by a single concept.”¹⁶⁴ These relationships and linkages must be constantly examined to determine the main links to success.

Ogarkov discussed the dialectical process further. He wrote that the law of unity and the struggle of opposites is a way to understand society’s development, and this includes the phenomena of war and military affairs. The struggle of contradictions or opposites provides an impulse to the development of new items and the discarding of the old.¹⁶⁵ Dialectics teaches that the accumulation of quantitative changes transforms at a certain stage into qualitative changes.¹⁶⁶ Finally, the negation of negation helps explain development. One set of equipment supplants and negates old equipment.¹⁶⁷

The Journal, Military Thought

Military Thought is the professional journal of the Armed Forces of Russia. During the time of the Soviet Union, the journal was classified, but ever since the dissolution of the USSR it has been available by subscription. The following nine articles were published in *Military Thought* from the mid-60s to 2007, with the classified versions that were published from the 60s through the 80s becoming available to the West in the 1990s. They are examined for their references only to strategy, especially as to how the term is defined and used.

One article in particular is singled out here for its focus on strategy, that being the 1984 article by N. N. Kuznetsov. He discussed in some detail the various categories and principles of strategy. Military strategy, Kuznetsov noted, “encompasses the theory and practice of preparing the country and armed forces for war, and planning and conducting strategic operations and war as a whole.”¹⁶⁸ The categories of

¹⁶⁴ Ibid., p. 31.

¹⁶⁵ Ibid., p. 32.

¹⁶⁶ Ibid., p. 34.

¹⁶⁷ Ibid., p. 35.

¹⁶⁸ N. N. Kuznetsov, “On the Categories and Principles of Soviet Military Strategy,” *Voennaya Mysl’ (Military Thought)*, No. 1 1984, p. 29.

military strategy are formed based on the experience of past wars, peacetime military development, and research of the nature and methods of preparing for the conduct of contemporary operations. As such, they reflect scientific-technical advances and the history of economic and military developments. Forming categories is a long process that produces an interconnected and orderly system, creating the logical structure of strategy's theory.¹⁶⁹

The main categories in the theory of Soviet military strategy are warfare, the armed forces, armed struggle, the armed forces' branches, the nature of warfare, strategic offense, forms of strategic operations, strategic operations, strategic goals, strategic missions, theaters of military operations, and strategic deployments. A strategic goal is the anticipated result of military operations in a war or operation resulting in a fundamental change in the military-political and strategic situation. The content depends on the political goals of a state in the war.¹⁷⁰ Disorganizing command and control or undermining an enemy state's military-economic potential are two such strategic goals. Strategic missions work out in detail specific strategic goals with respect to the objects to which the efforts of force groupings are attached, expressed in spatial and temporal limits. The content of the missions depends on the military-political situation, the nature of the strategic goal, the make-up and capabilities of the force groupings of the sides, the resources and methods of armed conflict being employed, and the features of the theater or region of military operations.¹⁷¹

Principles are the general, scientifically based tenets, rules, and recommendations for the activity of the state and higher military leadership regarding the preparation of the armed forces and the country for war, the organization and conduct of strategic operations, and the command and control of forces in peacetime and during war. They are

¹⁶⁹ Ibid., p. 30.

¹⁷⁰ Ibid., p. 31.

¹⁷¹ Ibid., p. 31-32.

developed based on war experiences and the development of the logistics base of the sides. They have an objective foundation.¹⁷² It was noted that:

Of course, as laws, the principles in and of themselves do not conduct or win wars, operations, or battles. People do that. Relying on objective laws reflected in the principles, they, as it were, coordinate their subjective activities with the natural tendencies of the course of military operations in a specific situation, and act upon it in the interests of achieving victory. Thus, the influence of objective laws is not automatic.¹⁷³

General laws of warfare and laws of armed struggle both utilize the COF's methodology and are manifested in the principles of strategy. The general laws of warfare include the specific role of the political goals of a war and the dependence of the course and outcome of a war on the correlation of economic, social, moral-political, and purely military forces of the warring sides. 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 inequality of the distribution of forces along the front and in the depth, 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.¹⁷⁴ However, the course and outcome of a war does not depend on one's superior strength in regard to the correlation of forces alone to achieve success, but also on the skill and creative use of the principles of military art to ensure success. Creating superiority in forces and skill at the decisive period and moment of an operation are what ensures success.¹⁷⁵

¹⁷² Ibid., p. 32.

¹⁷³ Ibid., p. 33.

¹⁷⁴ Ibid., p. 34.

¹⁷⁵ Ibid., p. 33.

Strategic goals must correspond to the political goals of a war, since politics determine adversaries, force employment and means, time and sequences of battles, intensity and duration of strategic operations, and end results and postwar tasks. Further, combat power is reliant on economic forces, since armaments, logistics, and maintenance levels depend on the ability of the state's financing to produce the required levels of production of weaponry and other equipment.¹⁷⁶

The principles of these categories are that there is an interconnection among them, with a subordination of categories from higher to lower (war, struggle, etc.). Similar categories are linked by groups (theaters of military operations could be linked by operations, axis, regions, etc.) and the theory of military strategy (philosophy, scientific categories, operational art, etc.).¹⁷⁷ For example, the totality of operations and actions in a theater of military operations, coordinated and interconnected with respect to goals, locations, and times of strikes, and conducted according to a single plan for achieving a strategic goal, would be a strategic operation on a continental theater of military operations.¹⁷⁸

Kuznetsov states that military-political forecasting is one of strategy's most important tasks. This is because practical tasks can only be correctly determined with the ability to envision the nature of warfare. Otherwise it is not possible to prepare the country to repel aggression. Associated with the preparation of the country through correct forecasting is the formation of the correct moral-political, psychological, and combat mentality in the populace. This preparation can serve as an indicator of the viability of a nation's strategic plans, that is, whether the population is prepared to fulfill the plan.¹⁷⁹

¹⁷⁶ Ibid., p. 35.

¹⁷⁷ Ibid., p. 30.

¹⁷⁸ Ibid.

¹⁷⁹ Ibid., pp. 37-38.

The other eight articles referencing strategy are summarized here in the order in which they appeared in the journal. A short explanation of each author's main view of strategy, either how it is defined or how it is used in context, is listed here for quick reference.

Major General V. Kruchinin, 1963: Strategic goals are based on the military-political goals of the regime, whereas strategic missions can result in the creation of favorable conditions for the subsequent expansion of military activity and execution of subsequent strategic missions. Strategic missions can be conducted simultaneously or successively to attain strategic goals, while surprise can disorganize an opposing force. Strategic reserves can change the correlation of forces and means, which allows for the retention of the strategic initiative.¹⁸⁰

Major General Kh. Dzhelaukhov, 1964: The concept of "augmentation of strategic efforts" means the "the capability of a given state or coalition of states to increase the strength of its resistance and at any given moment of the war to be stronger than the opposing side, skillfully using all its resources, all its economic, psychological-political, and military potential."¹⁸¹ Strategic efforts must be able to retain the strategic initiative from the beginning, or initial period, of a war. Also of decisive importance are economic capabilities and achievements in science and technology.¹⁸²

Marshall of the Soviet Union V. Sokolovskiy and Major General M. Cherednichenko, 1968: Military strategy has always been understood as a component part of military art. Military strategy is placed in a subordinate position in relation to policy, completely depends on it, and is inseparably linked with the political system. The authors consider

¹⁸⁰ V. Kruchinin, "Contemporary Strategic Theory on the Goals and Missions of Armed Conflict," *Military Thought*, No. 10, 1963, as translated and printed in Selected Readings from *Military Thought* (in English), Volume 5, Part I, p. 4.

¹⁸¹ Kh. Dzhelaukhov, "Augmentation of Strategic Efforts in Modern Armed Conflict," *Military Thought*, January 1964, as translated and printed in Selected Readings from *Military Thought* (in English), Volume 5, Part I, pp. 28-38.

¹⁸² *Ibid.*

strategy now to be a science, and, as such, the study of strategy requires contemporary assessments that are dynamic, branches must be grouped according to related attributes, processes must be formalized, problems must be compared before optimal ones are selected, mathematical models must be created, and computer equipment must be used.¹⁸³

Army General S. Ivanov, 1969: Doctrine is defined as a system of views on the state's military policy, the organization of its armed force, and the country's preparation for successfully waging war in defense of the Soviet Union. It is composed of political principles and military-technical principles. Soviet military strategy is guided by these doctrinal propositions on the character of a possible war and resolves concrete tasks. It studies in detail questions on the organization and preparation for war, the methods and forms of waging it, and leadership responsibilities.¹⁸⁴

Lieutenant General I Zav'yalov, 1971: New weapons are accompanied by the "birth of a new military art, new tactics, new operational art, and new strategy, unlike anything created in past wars."¹⁸⁵ Nuclear weapons, in Zav'yalov's opinion, have changed the traditional interrelationship among strategy, operational art, and tactics and given each of them more independence. This is the objective aspect of the correlation. Further, behind each weapon stands man, who determines a weapon's utilization and method of operation, the subjective factor, which increases "immeasurably under the conditions of nuclear warfare."¹⁸⁶

¹⁸³ 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.

¹⁸⁴ S. Ivanov, "Soviet Military Doctrine and Strategy," *Military Thought*, No. 5, 1968, as translated and printed in *Selected Readings from Military Thought* (in English), Volume 5, Part II, p. 18.

¹⁸⁵ I. Zav'yalov, "Evolution in the Correlation of Strategy, Operational Art, and Tactics," *Military Thought*, No. 11, 1971, as translated and printed in *Selected Readings from Military Thought* (in English), Volume 5, Part II, p. 121.

¹⁸⁶ *Ibid.*

Colonel General V. V. Korobushin, 1990: Military strategy must establish possible causes and scenarios for the initiation of wars, their periodization, dynamics of the intensity of military operations by phases of their conduct, points of greatest crisis, conditions and procedures for transition to limited or unlimited use of nuclear weapons, and possible preemptive measures to keep a conventional war from developing into a nuclear war. If attacked, military strategy “continues to be faced with the task of studying, substantiating, and considering the patterns and strategic nature of a possible war and determining methods of its conduct.”¹⁸⁷

Colonel A. A. Paderin, 2006: The interdependence between policy and military strategy must be realized in practice. Russia needs to build a weighted military strategy. The age in which we live has weapons and equipment that are real political instruments, making the use of military power more multi-optional and requiring the development of new military-political and strategic concepts. Politicians need to handle military development issues that consider objective military laws and present-day military strategy requirements.¹⁸⁸

Major General A. I. Malyshev, 2007: Military strategy is a component of Russian military art. It combines theoretical (nature, forms, and methods of modern operations and wars and their prevention) and practical (leadership preparation of the country for defense and their direction) factors. War is the main subject of military strategy. War’s content can be determined by a combination of many forms of warfare (economic, political-ideological, informational, etc.).¹⁸⁹

¹⁸⁷ V. V. Korobushin, “Some Pressing Problems of Military Strategy,” *Voennaya Mysl’ (Military Thought)*, No. 12, 1990, pp. 27-33.

¹⁸⁸ A. A. Paderin, “Policy and Military Strategy: A Unity Lesson,” *Military Thought*, No. 2 2006.

¹⁸⁹ A. I. Malyshev, “Military Strategy of the Russian Federation in the Early 21st Century,” *Military Thought (English Edition)*, No. 3 2007, p. 55.

Major General (retired) Aleksandr V. Rogovoy

In April 2015, in a *Letort Paper* for the US Army War College's Strategic Studies Institute, Rogovoy noted that, in order to ensure military security and guard against threats, it is important to determine the nature of dangers and threats to national interests.¹⁹⁰ This becomes "the defining factor for the planning of organizational development of the military with military security in mind."¹⁹¹ The main strategic task of the military was listed as being able to deter potential aggressors from waging war against Russia and its allies.¹⁹² This requires a strategic balance of forces.¹⁹³

Rogovoy stated that the temporal parameters of warfare are compressed and that the initial period of war will be the main and decisive one. Military-political objectives are achieved with lightning speed as the initiative is won.¹⁹⁴ Russian actions in Crimea would certainly fit this concept.

Conclusions

From a Russian perspective, strategy, the highest component of military art, is about preparing, planning, and achieving political and military goals through the employment of forces and resources. The planning and preparing comes about through the integration of a number of topics, to include official definitions, Marxist-Leninist thought, the historical experience of strategic planners (Svechin, Sokolovsky, etc.), and topics that support planning, especially foresight and COF calculations. The latter two cannot be emphasized enough.

¹⁹⁰ Military security was defined as "where society, the state, and its citizens are secure against external and internal threats associated with the use of military force or the threat of its use." A threat is "a set of conditions and factors that endanger the vital interests of the individual, society, and state." See Aleksandr V. Rogovoy, "Development Prospects for Land Forces," in *A Russian View on Landpower*, The Letort Papers, April 2015, p. 17.

¹⁹¹ *Ibid.*, p. 23.

¹⁹² *Ibid.*

¹⁹³ *Ibid.*, p. 26.

¹⁹⁴ *Ibid.*, p. 33.

It is through the use of these methods that strategy is planned and executed. Strategy is revised, as needed, to reflect continuous changes in the socio-political, economic, and military context and to adapt to changes in the balance of power in the world. The scope, intensity, duration, and objectives of military operations are considered. The study, consideration, and substantiation of military patterns and future war scenarios is an ongoing process, as Svechin noted on several occasions.

Creative strategy can be expressed as subjective thought applied to a commander's objective situation. The strategist of this type uses Marxism. Located within strategy's concept, most likely in the methods and forms of fighting, would be where one would expect to find deception activities, to include the use of reflexive control concepts. (See Chapter Three for a discussion of reflexive control)

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 in order "to uncover intentions, plans, capabilities, concepts, and methods."¹⁹⁵ Strategy requires a continuous reassessment of the capabilities of potential adversaries and results in updated modeling of the correlation of forces between nations. To a degree, this is similar to the assessment of comprehensive national power among nations that the Chinese military makes.

Russian analysts indicate that events in Ukraine will result in a new National Security Strategy and the nation's military doctrine will have new appendixes added to it. In effect the Russian leadership has, through its actions in Crimea and eastern Ukraine, resurrected an old adversary, NATO, against which they will use their newly developed strategy that uses nonmilitary methods in conjunction with military ones.

¹⁹⁵ Sokolovskiy and Cheredinichenko, pp. 7-15.

Russia's military leadership appears particularly attuned to confronting the so-called "color revolutions," with which Ukraine is associated due to the past Orange Revolution that occurred there. Retired General of the Army Yuriy Baluyevskiy stated that color revolutions include total information warfare that is "accompanied by other political and economic influence measures."¹⁹⁶ The goal of a color revolution, as stated by an unnamed source within the Russian Security Council, is to sweep away legitimate regimes through controlled chaos.¹⁹⁷

Chief of the Russian General Staff Valery Gerasimov noted that "wars are now not even declared, but having begun, are not going according to a pattern we are accustomed to."¹⁹⁸ He added that the rules of war have changed, since non-military methods are now used to achieve political and strategic goals. If we look at Russia's reacquisition of Crimea, who appears to understand these new rules better than the Russian military? Perhaps more importantly, Gerasimov stated that remote noncontact influence on an enemy is becoming the main method of achieving goals, where differences among strategic, operational, and tactical levels of war as well as differences between offense and defense are fading away.

Gerasimov added that scientific investigation is not worth much if military theory does not provide for the function of foresight. It will be interesting to see how other nations will come to understand Russia's new view of reality and how they will plan to confront Russia's concept of strategy and its foresight and COF techniques.

¹⁹⁶ Vladimir Mukhin, "Moscow Adjusts Military Doctrine. Events in Ukraine Are Making Russia Amend Documents Defining National Security Strategy," *Nezavisimaya Gazeta Online (Independent News Online)*, 1 August 2014.

¹⁹⁷ Ibid.

¹⁹⁸ 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.

CHAPTER THREE: THINKING LIKE A RUSSIAN OFFICER

Introduction

During the past three or four years Western analysts have tried to decipher Russian military actions and find a term to describe them. Two concepts in particular have dominated these discussions. The first is the issue of hybrid operations. Western analysts have not only labeled Russian actions as hybrid but also state that this is the wording Russia's military uses to describe their operations.¹⁹⁹ However, until the end of 2015 at least, Russian military officers refuted their use of hybrid operations. Instead they state that it is the West who is using hybrid operations against Russia. Second, after 2013 the West added another descriptor to their assessment of Russian military actions, labeling Russia's operations to be examples of new-generation wars (NGW). As opposed to the hybrid label, for which there was no hard evidence, the NGW label is based on wording used by Russian military authors to describe future methods of conducting warfare. In 2013 Russian military officers on several occasions referred to NGW, with two authors in particular using the term as the title of their joint article. However, ever since 2013, the Russian military has gone silent on the topic of NGW.

Meanwhile, Russian military journals continue to stress elements of their traditional approach to plan and conduct military operations used since Soviet times. These aspects of Russian thought are seldom discussed in the West at the present time, relying instead on the more topical hybrid and NGW concepts. There appear to be five:

1. Forecasting future events
2. Developing the correlation of forces between/among the sides
3. Pointing out developing trends in warfare

¹⁹⁹ See, for example, Dovydas Pancerovas, "Russia's Sixth Column in Lithuania is a Sign Russia is Already Conducting Hybrid War in Our Country, Too," *15min.lt*, 23 September 2014.

4. Developing the organizational forms of contemporary warfare
5. Highlighting the weapons and principles used as methods in contemporary war

Russian analysis begins with forecasts of the potential shape of future war, followed by a correlation of forces (COF) analysis based on numbers (quantifying advantages), technologies (quality advantages in weaponry), and other factors present in a given geopolitical setting (diplomacy, economics, etc.). Forecasts and COF assessments, for example, were made of the Arctic. The analysis must have been favorable, since it appears to have emboldened the Russian military to militarize the Arctic. Other important items that planners appear to consider in their preparation of future battlefields are contemporary trends (for example, Gerasimov points out that nonmilitary trends are used more often than military ones today) along with the more traditional forms and methods of warfare that are almost obligatory to mention when discussing warfare. However, since forecasts and COF issues were discussed in Chapter Two they will not be dealt with in detail here but just shortly mentioned and described. The discussion will focus on the three other concepts Russian writers utilize: trends, forms, and methods of warfare. Perhaps a risk analysis is also performed based on windows of opportunity. Westerners may be ignoring these factors at their peril due to their focus on hybrid and NGW concepts.

The discussion below first shortly examines Russia's response to Western accusations that the Russian military uses hybrid thought. That is followed first by a discussion of NGW and then by a discussion of the three elements of traditional Russian thought not covered in Chapter Two: trends, forms, and methods of conducting operations. This is followed by the way in which Russia has applied nonmilitary, indirect, asymmetric, strategic and cross-domain deterrence, and reflexive control thinking to its so-called "objective reality" and how it attempts to manipulate the reality of others. To put Russian actions in perspective, a combination of all of these vectors helps one's overall understanding. None should be discarded but they need to be understood in context.

Hybrid Thought

In 2014 and 2015 many Westerners increasingly referred to Russian actions in Ukraine as part of a hybrid war that included the use of hard and soft tactics to achieve the goals of Russian President Vladimir Putin and the military. However, Russia's military makes the opposite assertion, that the West is using hybrid tactics against Russia. For example, with regard to hybrid war, a *Military Thought* article in 2015 by two Russian authors stated the following:

‘Hybrid warfare (gibridnaya voyna),’ then, is not exactly the right term and is slightly at odds with the glossary used in this country’s military science. Essentially, these actions can be regarded as a form of confrontation between countries or, in a narrow sense, as a form in which forces and capabilities are used to assure national security.²⁰⁰

In April 2015 Putin aide Sergey Glazyev noted that “the global hybrid war that is being rolled out by the USA is conducted with the extensive use of projects developed as part of the new technological order, and is at the same time the catalyst for the emergence of this new order in the US economy.”²⁰¹ The new technological order includes information and communication technologies, high-precision robotic weapons, and cognitive technologies, turning the mass media into a psychotropic weapon of mass destruction of the minds of the ruling elite and the population.²⁰²

There have been very few references to hybrid war by Russian officers, and, when used, they refer to the term as a Western concept, not a Russian one. For example, in February 2015 journalist Vladimir

²⁰⁰ V. B. Andrianov and V. V. Loyko, “Questions Regarding the Use of the Armed Forces of the Russian Federation in Crisis Situations in Peacetime,” *Voennaya Mysl’ (Military Thought)*, No. 1 2015, p. 68.

²⁰¹ *RIA Novosti*, 8 April 2015.

²⁰² *Ibid.*

Mukhin noted that, for the first time in the history of the crisis in Ukraine, an active-duty commander of the Russian Army acknowledged that hybrid-warfare technology was employed a year ago in Crimea. Lieutenant-General Oleg Makarevich stated that “It is no secret that the Americans are now carefully studying our experience of operations from February through July 2014, when our troops accomplished the mission in Crimea, which subsequently came to be called a new hybrid war, without a shot being fired.”²⁰³ The statement “which came to be called a new hybrid war” is not necessarily a confession that the Russians call it that, just that it “came to be called” hybrid—a distinctly Western term.

Today, Russia’s military does not mention that it uses hybrid operations, although civilian military analysts (and a few military authors) state that other nations accuse Russia of hybrid operations or techniques. The concept is mentioned obliquely. For example, in January 2015 Russian officers at Western Military District Headquarters discussed hybrid operations as being a military strategy merging conventional, low-intensity, and cyber war. These experts lumped information operations, psychological actions, and cyber-attacks, which are targeted at citizens and a state’s structural technological components, as one of the main forms of the conduct of hybrid warfare. These officers did not state that Russia used hybrid operations, rather they just said what they thought other nations meant by it.²⁰⁴ Instead, other options are offered to describe Russian military actions.

If you template your own thought process, such as hybrid thought, onto another nations, you might totally miss their key assessment and decision-making criteria, follow a wrong path, or make unforced errors. Thinking your opponent is using your thought process is mirror-imaging.

²⁰³ Vladimir Mukhin, “Crimea Was Taken as Part of Hybrid Warfare. Russian Military Science Continues to Nonplus Western Experts,” *Nezavisimaya Gazeta Online (Independent News Online)*, 13 February 2015.

²⁰⁴ Aleksandr Pinchuk, “In Order to Win in a Hybrid War,” *Krasnaya Zvezda Online (Red Star Online)*, 23 January 2015.

New-Generation War

In 2013 several articles appeared that mentioned the NGW concept. A full explanation of the concept was first provided in a 2013 article titled, “The Nature and Content of a New-Generation War.” The authors, S. A. Chekinov and S. G. Bogdanov, who had earlier discussed indirect and asymmetric operations in detail, described the “way” in which a future war might be fought.²⁰⁵ In many respects this article represented a summary of earlier articles they had written. Initially Chekinov and Bogdanov described NGW (which they first mentioned in a 2012 article) as based on nonmilitary options, mobile joint forces, and new information technologies, more along the lines of the nature of war discussions that had preceded their article. NGWs were forecasted to radically alter the character and content of armed struggle in the following manner:

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.²⁰⁶

²⁰⁵ 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.

²⁰⁶ *Ibid.*, p. 16.

A further comment was that new forms and methods of employing joint forces in operations and engagements would evolve.²⁰⁷ The authors then stated that they would venture their own viewpoints on the character and content of a NGW. They began by noting that a NGW would be dominated by information and psychological warfare and that asymmetric actions would be used extensively (in the form of indirect actions and nonmilitary measures). Nonmilitary measures would reduce the chances for an aggressor to engage in hostile activities, provide an unflattering public opinion image of the enemy, and offer friendly forces the chance to make sensational denunciations of an opponent's aggressive plans. Of vital importance is that NGWs would 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."²⁰⁸ Thus, the most economically advanced countries will try to prevent a potential adversary from achieving superiority in warfare technologies.

Next, the authors described how a future war would be conducted. In several instances US or Western armies were said to use the techniques under discussion. Of interest is that in the past, during the days of the Soviet Union, Soviet officers described techniques supposedly used in Western armies to fight wars that, in actuality, were descriptions of how the Soviets might or would fight. These examples were contained in the journal, *Zarubezhnoe Voennoe Obozrenie* (*Foreign Military Review*). Thus if this methodology has carried over to Russian times, then the description of Western techniques below could be a way to openly describe to Russian officers how to fight a future war without stating so. Whether this same template is used is unknown.

First, the aggressive side would use nonmilitary actions as it plans to attack its victim in a NGW. This would be a distributed attack designed to strike at a country's social system with the aim of promoting democracy and respect for human rights. Enemy plans would include a

²⁰⁷ Ibid., p. 17.

²⁰⁸ Ibid., pp. 17-18.

disinformation campaign to conceal the commencement date and scale of operations. This could include measures carried out through diplomatic channels and private media, while high-ranking political and military officers make public statements for greater disinformation effect. This requires the attainment of information superiority as well.²⁰⁹

Second, decisive battles will rage in the information environment, where the attacker manipulates the “intelligent machines” at a distance. A quantum computer may turn into a tool of destruction in this sense, as new-generation “blitz” wars will be created, operating in the nanosecond range. Speed, synchronization, and concurrency will decide success or failure. These attacks will be set up by information, moral, psychological, ideological, and other measures months earlier.²¹⁰ In an eerie reference to what would happen in a year’s time in Eastern Ukraine, it was noted that

Heavy propaganda is designed to spark discontent among the defender’s population and armed forces personnel at the current government agencies’ activities. The propagandists expect to depress the moral and psychological feelings of the civilian population and armed forces personnel to a level where they give up resistance and the civil administration and military control systems are unbalanced.²¹¹

Third, the aggressor may use nonlethal, new-generation, genetically engineered biological weapons that affect the human psyche and moods, which intensify propaganda effects and thereby help to drag the target country into chaos. Undercover agents are planted to encourage discontent and unlawful acts, as well as to stoke up chaos, panic, and disobedience among the population.²¹² (Russian authors

²⁰⁹ Ibid., p. 19.

²¹⁰ Ibid., p. 20.

²¹¹ Ibid., p. 20.

²¹² Ibid., 21.

appear to fear this happening inside their country. They write often on the fear of so-called “color revolutions” occurring.)

Fourth, the start of the military phase will be preceded by large-scale reconnaissance and subversive missions conducted under the guise of information operations. These operations will be used to target important objectives vital to the country’s sustainability.²¹³ Fifth, the attack will probably begin with an aerospace operation lasting several days. The goal will be to damage an opponent’s key military and industrial capabilities, communication hubs, and military control centers. A subordinate mission will be to disorganize the defender’s air force and air defense system.²¹⁴

Sixth, the defender must anticipate an attack by military robots in conjunction with the aerospace attack. This implies the extended use of UAVs first of all, as well as robot-controlled systems capable of engaging in combat activities independently. Robots will be used to collect intelligence and reconnaissance data. It seems that ground forces will only be deployed after political and military goals are achieved.²¹⁵

Seventh, the authors relate that the opening period of a NGW will be pivotal, breaking it down into several phases, to include targeted information operations, electronic warfare operations, aerospace operations, and the use of precision weaponry, long-range artillery, and weapons based on new physical principles. In the closing period of war attackers will roll over any remaining points of resistance and destroy surviving enemy units with special operations.²¹⁶

In conclusion, the authors noted that every kind of power containment method, especially nonmilitary ones, must be used to persuade an opponent that the cost of his attack will be higher than

²¹³ Ibid.

²¹⁴ Ibid.

²¹⁵ Ibid., 22.

²¹⁶ Ibid., 23.

expected. A demonstration of Russian readiness and a strongly worded statement can be used for the preparation of an information operation to mislead the enemy about Russia's readiness to fight aggression. More importantly, the authors concluded by stating that "a country preaching a defensive doctrine may get the short end of the deal in the face of a surprise attack by an aggressor."²¹⁷ Information superiority and anticipatory operations will be the main ingredients for success in NGWs.²¹⁸

Forecasting, COF, Forms, Methods, and Trends

What terms DO appear in Russian discussions of armed conflict are forecasting, correlation of forces, and, most often of all, the "forms and methods" of warfare. These items have been discussed since the 1960s (or earlier) and represent continuity in Russian military thought into which new terms such as NGW are brought.

Forecasting, if one refers back to a Soviet view from 1975, is defined in the following manner:

The study of the military-political situation, the pattern of war in the future, 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 potential of the war economy in the future, and also the forecasting of the enemy's strategic and tactical plans.²¹⁹

With regard to types of forecasting, nine different types were listed. Numbers 1-3 below represent the overall political situation, numbers 4-7

²¹⁷ Ibid., p. 23.

²¹⁸ Ibid.

²¹⁹ Yu. V. Chuyev and Yu. B. Mikhaylov, *Forecasting in Military Affairs*, Moscow 1975, translated into English by the DGIS Multilingual Section, Secretary of State, Ottawa Canada, p. 14.

are elements of friendly forecasting, number 8 is the enemy situation and takes into account the same four elements (4-7) of the friendly situation but from an adversarial perspective, and number 9 represents the combination of an assessment of friendly and enemy considerations:

1. Forecasting the political situation
2. Economic forecasting
3. Forecasting the development of science and technology
4. Military-strategic forecasting
5. Operational-tactical forecasting
6. Military-economic forecasting
7. Military-technical forecasting
8. Forecasting the enemy's situation (which appears to take into account all of the above factors from the adversary's point of view)
9. Military forecasting²²⁰

The COF, according to the Soviet military encyclopedia, is 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.”²²¹ It is determined by comparing quantitative and qualitative assessment of all units and armaments, calculated on all levels of military art throughout an area of operation. It is done so with tables and computers to speed calculations.²²² Some Russian analysts add the necessity of including a correlation of intellectual capabilities of opposing commanders to the assessment,²²³ while others, such as General of the Army Makhmut Gareev, are now calling for assessments

²²⁰ Ibid., p. 18.

²²¹ N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 691.

²²² Ibid.

²²³ See, for example, the work of Ryabchuk in Chapter Two on the topic.

of the correlation between the correct use of direct and indirect operations.²²⁴

With regard to the next element of thought, forms and methods of operation, Chekinov and Bogdanov are among numerous authors (to include Gerasimov) who clearly state that new “forms and methods” of employing joint forces in operations and engagements must evolve. Gerasimov has charged the Academy of Military Science, among others, with developing them and, in his well-known 2013 speech that was printed in *VPK*, he mentioned “forms and methods” 11 times (without mentioning hybrid or new-generation war). These two issues, along with evolving trends in warfare, appear to be equally as important as forecasting and COF elements of Russian military thought when planning operations.

The Soviet military encyclopedia notes that forms of military operations are those employed in conformity with the scope or scale of combat. They include combat arms capabilities, the objectives of military operations, and the nature of assigned missions, to include operations, battles, and engagements.²²⁵ A 2008 *Military Thought* article noted that the form of military actions represented “goal-oriented, organization, spatial, temporal, and quantitative confines for armed forces employment.” More importantly, the form of military actions was defined as the “organizational side of troop actions, combining most important characteristics of actions: goals and tasks, the makeup of engaged forces and specifics of their command and control under given conditions, structure of actions, their scale in time and in space.”²²⁶ The

²²⁴ 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.

²²⁵ N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 782.

²²⁶ See Eastview publication *Military Thought (English editions)*, Number 3, 2008, pp. 149-153, for O. V. Korol and N. L. Romas's article, “Form of Military (Combat) Actions: on the Meaning of the Category.”

organizational side of troop actions is a good way to remember what is meant by forms.

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.²²⁷ A 2010 *Military Thought* article, for example, noted that methods differ from one another due to the nature of the actions, the forces employed, and the set of typecast rules. However, armaments (weapons) and the principles of military art have the greatest impact on methods. The nature of methods “consists not so much in the quantitative-qualitative characteristics of weapons as in the art of their employment.” For example, the “art of their employment” can include principles such as concentrating efforts on main sectors, coordinating troop efforts and interactions, ways of troop control and maneuvering forces and equipment, and manners of creating and using reserves.²²⁸

With regard to armaments or weapons, consider aerospace methods. They are determined by a weapon’s purpose, the number of units present, range, height of action, mobility, and so on. Principles of military art are determined by the original state of the troops, the nature of response to the threat, time of actions, and so on. Each property of a military principle can have several alternative methods. For example, with regard to time, methods could be either simultaneous or consecutive.²²⁹ The development of weaponry and the use of the principles of military art are thus good indicators for remembering what is meant by methods. Within these two somewhat benign-sounding terms of forms and methods are found the employment of specific issues, such as the manner in which disinformation, the principles of war, the use of cunning, and other military actions can be found. When possible, these two concepts should be analyzed closely.

²²⁷ Ogarkov, p. 440.

²²⁸ M. G. Valeyev and N. L. Romas, “The Methodological Basis for Choosing the Methods of Military Activity,” *Voennaya Mysl’ (Military Thought)*, No. 6 2010, pp. 3-10.

²²⁹ *Ibid.*, pp. 6-8.

In 2013 retired Lieutenant General V. A. Vinogradov discussed the trends in the conduct of operations in a major war. He regards trends as the hallmark of future operations. In his estimation trends are: the growing role of the first electronic and fire strike; the side's resolve in achieving the goals of an operation; the dynamic and maneuverable style of combat; the role given to effective strikes using new-generation weapons and systems; the seizure and holding of the initiative; the changes in the situation caused by mobile troops and efficiency of fire; the spread of simultaneous combat operations; and the role of protection. Other important trends include the use of surprise, resolve, and the offense as well as the employment of specific weapons that can cause changes in the situation. While conventional forces are currently used to route the enemy consecutively, it will not be long before new weapons will allow the simultaneous route of an enemy from front to rear. A primary trend is that it remains vital to gain and hold the initiative.²³⁰

Western analysts need to continue to focus on Russia's traditional ways of uncovering the evolving forms and methods of conflict. Simultaneously they can study and make decisions as to whether the use of more interesting Western terms, such as hybrid or gray zone activities, actually apply to Russian thought. A continued focus on traditional ways of thought will help analysts avoid missing the essence of Russian military thought as it relates to geopolitics and Russia's view of objective reality; and avoid missing how forecasts and COF assessments are made and when and how Russia may be applying them. The terms are ingrained in military thinking and are descriptive of the way Russian officers think and come to view the evolving trends of war.

Russia's Indirect/Asymmetric Template

Putin has made three important declarations. First, he has let nations know that Russians living in former Soviet lands are considered,

²³⁰ V. A. Vinogradov, "Trends in the Character and Methods for Conducting a Major War," *Voennaya Mysl' (Military Thought)*, No. 10 2013, pp. 25-29.

from his point of view, to be ruled by the laws of Russia, not the countries in which they now reside. Second, he has informed the West that he is tired of being humiliated and treated as a second-class nation and intends to rectify the situation. Finally, he has made it clear that former Soviet states were taken from the USSR illegally and must be returned. He does not believe Russia has the strength to make these changes directly, so he has relied instead on nonmilitary actions when possible, even if that means using surrogates and misleading his domestic audience as to what actions the Russian military is taking. Further, this reliance on indirect and asymmetric operations has been a continuous theme of Russian military thought over the past decade, as the following analysis demonstrates.

In 2005 Colonel P. A. Dulnev and Colonel (retired) E. A. Bryuzgin, writing in the authoritative *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, stated that in the past two decades several factors had become apparent in warfare. Of importance was that 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.²³¹ Another article stated that the development of an asymmetric approach requires a thorough study of the vulnerabilities of a target, its “robustness.” The identification of vulnerabilities often requires the identification of key assets or the use of sophisticated intelligence efforts to obtain such information. For example, a main goal in any future war scenario remains the elimination of an opponent’s satellite system, from which much intelligence is gathered. This might require the determination of the vulnerabilities of a group of objectives united by a common operating algorithm.²³² Thus, it is clear that the development of an asymmetric set of options is not an easy chore. It requires research,

²³¹ 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.

²³² Mikhail Mikhaylovich Rastopshin, “In the Labyrinth of Asymmetric Responses,” *Nezavisimoe Voennoe Obozrenie (Independent Military Review)*, No. 17, 1 June 2007, p. 6, as downloaded from Eastview.com on 17 March 2010.

intelligence, and development of ways to take advantage of threat vulnerabilities.

In 2008 retired General of the Army Makhmut Gareev, the President of the Academy of Military Science, stated that Russia must confront threats with flexible and asymmetric measures united by a common goal and concept of actions. To achieve this goal Gareev introduced the concept of strategic deterrence. He defined this asymmetric approach as 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 with threats of unacceptable consequences as a result of retaliatory actions.²³³ He offered two other areas of focus that could be termed asymmetrical. First, Russia's main effort will not be directed at the destruction of every weapon but rather at the destruction of their unified information space, sources of intelligence, navigation and guidance systems, and communications and command and control systems. Second, only peaceful development will enable Russia to achieve its main goal of the country's "economic, nanotechnological, and sociopolitical modernization."²³⁴

With regard to indirect actions, Gareev discussed their importance in this 2010 article in *Military Thought*:

It is also obvious to everyone that in current conditions, 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, which are tied to political, economic, and psychological influences on the enemy and to methods of feeding him disinformation and destroying him from

²³³ 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.

²³⁴ Ibid.

within, have always played a big role...in current conditions, when nuclear weapons limit strategic goals, the role of the above mentioned indirect actions becomes significantly greater. We are talking about a greater flexibility in military art...including nonmilitary and nontraditional ones.²³⁵

A year after Gareev's article, S. G. Chekinov and S. A. Bogdanov discussed the indirect approach in the same journal. They stated that the re-division of territory and markets is now being achieved through the indirect approach and the employment of nonmilitary means. The indirect approach strategy uses various forms and methods of indirect military and nonmilitary actions and means, to include information, noncontact confrontation, electronic, fire-based, land-sea, and aerospace attacks. Nonmilitary means include political, legal, economic standards, spiritual values, general-purpose information, and technological systems used by the state to influence internal and external relations. These means sap an aggressor's hostile potential, provide a negative image in the aggressor's social media, and help broadcast sensational revelations about an aggressor's plans. States that cannot secure their information security risk losing their political sovereignty, economic independence, and cannot aspire to be even regional leaders. This may require studying more closely the foreign experience in information operations. The US conducts its nonmilitary operations, the authors noted, through the concealment of its real goals under the cover of the "promotion of democracy" or "combatting terrorism."²³⁶

Chekinov and Bogdanov make a reference in their article to the Russian concept of reflexive control without referring to it directly. They noted that metaprogramming involved

²³⁵ 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.

²³⁶ 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, pp. 3-13.

Installing program filters that force the client to perceive the world in a way desired by the programmers. The individual, social institution, corporation, or state subjected to metaprogramming can be safely left to their own devices as long as the ‘route’ they follow is adjusted operationally and tactically.²³⁷

The authors note that such “methodologies of psychologically manipulating and affecting the individual, social institutions, corporations, or states” were supervised and implemented by the US. Examples included the latter’s use of “color” revolutions.²³⁸

Chekinov and Bogdanov’s discussion of what they perceive as the US’s indirect actions (and what they fear) did not end here. They added that the US’s High Frequency Active Auroral Research Program (HAARP) can be used to manipulate the weather and cause earthquakes, tsunamis, floods, tornados, and droughts. Thus nonmilitary or indirect means can find many sources of inspiration. It is thus expedient, the authors conclude, to “map out and eventually also implement a strategy of the indirect approach as its state strategy without an alternative.”²³⁹

Also in 2010, the same two Russian analysts noted that Putin had stated “our responses are to be based on intellectual superiority. They will be asymmetrical, and less costly.”²⁴⁰ Asymmetrical approaches feature a combination of forms and methods of using forces and means to exploit areas where adversaries have an unequal combat potential as compared to Russia. The use of such means allows for the avoidance of a direct confrontation.²⁴¹ In Ukraine there most certainly was an unequal combat potential between Ukrainian and Russian forces in Crimea.

²³⁷ Ibid.

²³⁸ Ibid.

²³⁹ Ibid.

²⁴⁰ S. G. Chekinov and S. A. Bogdanov, “Asymmetrical Actions to Ensure Russia’s Military Security,” *Voennaya Mysl’ (Military Thought)*, No. 3 2010, p. 21.

²⁴¹ Ibid.

Further, the terms “asymmetrical approach” or “asymmetrical actions” are close in substance to the concepts of indirect actions and indirect action strategy, according to the authors.²⁴² Thus this trend in viewing contemporary conflicts as winnable through indirect or asymmetric actions instead of direct confrontation appears to continue unabated today. It has a history.

In early 2015, in the *Bulletin of the Academy of Military Science* of Russia, General-Lieutenant A. V. Kartapalov, then the Chief of the Main Operations Directorate of the General Staff of Russia (in late 2015 he was named as the head of the Western Military District), wrote a lengthy article on the recent lessons of military conflicts and what they had taught Russia. The article examines changes in the nature of armed struggle and what is described as “new warfare” or “war of a new type.” He also describes what he terms as the U.S. methodology for conducting warfare, using Libya and Iraq as examples (from a Western point of view, Kartapalov’s description of U.S. methodology for conducting conflict fits precisely with the manner in which Russia executed its actions in Ukraine).²⁴³

He begins by noting that aggressor states, such as the U.S., pressure victim states with various measures in order to increase America’s volume of natural resources and thereby enable it to stay at the top of the world as an economic power. The U.S. uses direct and indirect actions to do so, he adds, and presents a specific scenario for this process, 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

²⁴² Ibid., p. 19. For an earlier discussion of indirect operations, see I. N. Vorobyov and V. A. Kiselev, “Indirect Action Strategy in its New Form,” *Voennaya Mysl’ (Military Thought)*, No. 9 2006, pp. 2-5.

²⁴³ 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.

pressure is exerted against countries obstructing U.S. policies, and United Nations Security Council's permission is sought to use military force.²⁴⁴

To maintain its world hegemony, the U.S. has conducted “systemic” deterrence operations against Russia. U.S. actions in Ukraine, in Kartapalov’s view, served only as a pretext for a qualitative increase in an anti-Russian campaign. In his opinion the U.S. has demonized opponents, disrupted communications, formed ideological coalitions, advanced NATO’s infrastructure to Russia’s border, imposed an arms race on other nations, manipulated energy markets, and drug Russia and others into regional conflicts. These means are used to completely subordinate the leadership of an enemy to America’s will.²⁴⁵

Increasingly the U.S. is using hybrid operations, which include military and non-military measures. These measures are accompanied by dynamic information-psychological effects against the population and leadership of victim states; by the use of armed internal opposition detachments; and by the use of special operations forces [author: which mimic almost perfectly Russian actions in Ukraine]. 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). They differ from “direct” operations, since the latter must be especially dynamic and not passive in any form according to Kartapalov.²⁴⁶

²⁴⁴ Ibid., p. 26.

²⁴⁵ Ibid., p. 28.

²⁴⁶ Ibid., p. 29.

The development of an information confrontation campaign by an adversary is designed to disorganize Russia's national development, destroy the foundations of sovereignty, and helps change a country's rulers, Kartapalov adds. Thus 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. Meanwhile, the leadership is not aware of what is unfolding. There are no clear signs of external aggression when, suddenly, demonstrations and anti-government protests break out. Front lines are created along ethnic or rich versus poor confrontations and external incursions begin (foreign extremists and mercenaries, anti-government immigrant structures, private military companies, special operations forces, criminal bands, etc. appear).²⁴⁷ Foreign nongovernmental organizations (humanitarian, medical, social, human rights, etc.) appear as well. As a result, Kartapalov writes, it is "difficult to understand who is fighting and for what, what is truth, and what is a lie."²⁴⁸

Once again using the concept of pretext, Kartapalov stated that interference in conflicts by force is conducted under the guise or pretext of preventing humanitarian catastrophes and stabilizing the situation. He also describes what he refers to as changes in the nature of war and "new warfare" actions, adding that "practically the entire territory of the country is the front line." Changes in the nature of conflict include: conducting combat on land, sea, air, space, and in 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.²⁴⁹

²⁴⁷ Ibid., p. 30.

²⁴⁸ Ibid., p. 31.

²⁴⁹ Ibid., p. 34.

Warfare changes and new warfare traits include violations of humanitarian standards and human rights, which are often the basic content of war; the fact that conflicts have a more protracted character; the use of indirect actions which have achieved results through demoralizing the enemy and inflicting damage on him without the use of force; the fact that war is often never declared and it never ends, and that powers achieve their national interests on the territory of third countries; that only 10-20 percent of warfare consists of violence (with the other 80-90 percent being propaganda) and that intelligence, command and control, and destruction means have increased; and that interference by foreign states often has led to the exacerbation of the conflict, not to its resolution. New methods of warfare used by extremists include the systematic murders of those who “are not one’s own,” the displacement of populations, and the conduct of genocide with the aim of introducing civil war.²⁵⁰

The potential capabilities of the U.S. military were especially underscored by Kartapalov. He stated that America’s basing systems abroad, its global missile defense architecture and instantaneous global strike concept (which presupposes strategic and non-nuclear precision weapons), and its precision electronic information strikes and technical development of a reconnaissance-strike system have all been created or improved. These actions in Kartapalov’s opinion can undermine global stability, disrupt the correlation of forces in the nuclear missile sphere, and create a real threat in the mid-term to the security of the Russian Federation.²⁵¹

To balance the technological superiority of countries, such as the U.S., 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 operations, foreign agents, various forms of information effects, and other nonmilitary forms of effects. For each conflict a different set of asymmetric operations will

²⁵⁰ Ibid., p. 33.

²⁵¹ Ibid., p. 35.

be created [author: which parallels Gerasimov's comment that each conflict has a logic all its own]. Such actions must be timely and coordinated with respect to targets, location, and time in regard to various departments of government organizations.²⁵² Kartapalov notes:

Asymmetric operations are inherent to a conflict situation in which by means of actions of an economic, diplomatic, informational, 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.²⁵³

As a result, indirect and asymmetric actions must be included in the appropriate regulations and provisions, and they must be introduced into the operational training of forces in military schools and institutes. Military science must play a major role in the development of these concepts. These concepts must be introduced as soon as possible, as any lag in their investment will produce a situation that is irrevocable and result in losses for our ability to control enemies worldwide.²⁵⁴

Kartapalov noted that asymmetric actions are conducted with the aim of eliminating (neutralizing) advantages the enemy has and delivering against him (subjecting him to) damage using minimal expenditures. Some of the principles of asymmetric operations included the following: covertness of preparation for the conduct of operations; persuasion of the weak side to use prohibited means to conduct military

²⁵² Ibid., p. 36.

²⁵³ Ibid., p. 35.

²⁵⁴ Ibid., p. 36.

operations; concentration of efforts against the enemy's most vulnerable locations (targets); searching for and expose the enemy's weak points; imposing on the enemy one's own variant (one's own will) for the course of the conflict; and expending low resources with respect to enemy actions. The goal is to achieve superiority or parity with results.²⁵⁵ See the next page for a graphic on "Methods and Ways of Conducting a New-Type of War" that was included in Kartapalov's article.²⁵⁶

²⁵⁵ Ibid., p. 35.

²⁵⁶ Ibid., p. 28.

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.

Priority trends for developing combat capabilities include implementing decisions in a timely manner; developing future weapon systems and complexes that support the employment of the latest technologies; developing robotic complexes and UAVs for military purposes; creating a future telecommunications infrastructure for the Armed Forces; developing strategic deterrence forces and means to counter an instant global strike; and searching for ways to adequately model mathematically combat processes.²⁵⁷

Another author noted that several asymmetric responses suggested in 2010, invoked in place of operations on the battlefield, would be:

- 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
- Form up again the Mediterranean Sea Operational Squadron.²⁵⁸

Many of these points appear to be under development just five years later. It was noted that some asymmetric responses are not only technological, but also operational-strategic and operational-tactical. This implies an asymmetry in strategic thought and the use of forces on the battlefield.

²⁵⁷ Ibid., p. 34.

²⁵⁸ 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.

Gerasimov discussed the dramatic change in the nature of warfare and the use of asymmetric operations. This change may have encouraged Putin's opportunistic approach. Wars are not even declared, Gerasimov notes, and are not following patterns to which Russia is accustomed. Asymmetric actions make it possible to offset an enemy's superiority in armed warfare. The element of surprise is key here. Related to this, he adds, is 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."²⁵⁹ Further, he notes that nonmilitary measures, such as the involvement of the population's protest potential, are becoming a new method for carrying out combat operations. He makes the important point that nonmilitary measures are occurring at a rate of 4:1 over military operations. This is a very important detail, and one that encourages further the use of surrogates or financial, political, and social means. Covert operations, to include information warfare measures and special operations forces, accompany such methods. Information conflict, in particular, opens up "extensive asymmetric capabilities for the reduction of an enemy's combat potential."²⁶⁰

Gerasimov concludes by noting that "a dismissive approach to a new idea, a nonstandard approach, to a different point of view in military science is impermissible...each war represents an isolated case, requiring an understanding of its own particular logic, its own unique character."²⁶¹ Asymmetric and indirect operations can be expressed "in political isolation, the conduct of economic sanctions, a blockade of maritime, air, and land lines of communications, intimidation through force, and also in the introduction of an international peacekeeping contingent under the pretext of the defense of human rights and

²⁵⁹ 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.

²⁶⁰ *Ibid.*

²⁶¹ *Ibid.*

humanitarian operations.”²⁶² His focus on asymmetric and indirect operations and the extensive use of the information domain, the civil-military component, and special operation forces continued into 2014 and 2015.

In a recent article in the *Bulletin of the Academy of Military Science*, the authors listed their interpretation of the main characteristics of war’s changing character (with no mention of hybrid war). These factors were the changes in the essence and content of armed conflicts; the dependence of the course and outcome of armed struggle on other types of struggle in military conflict (political, informational, psychological, etc.); the informatization of military affairs, bringing the development of 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 will make it possible to implement destructive factors that are not manifested earlier on a massive scale; and the shift of efforts to the space sphere, with the goal of achieving a guaranteed force superiority over potential enemies.²⁶³

Thus, models and dictionary definitions are useful to a point, but unique logic applied to the situation at hand may best demonstrate the basis for Russian strategic thinking and creativity. The form and method of Russia’s conduct of the conflict in Ukraine is most certainly creative and follows a logic all its own. Perhaps the same can be said of Russian actions in cyberspace.

²⁶² Oleg Falichev, “The Future is Being Laid Today: Armed Forces Structure Theory Must Correspond to the Nature of Future Wars to the Maximum Extent Possible,” *Voyenno-Promyshlennyi Kuryer Online (Military-Industrial Courier Online)*, 13 March 2013.

²⁶³ P. A. Kul’nev and V. I. Orlianskii, “Principal Changes in the Nature of Armed Struggle in the First Third of the 21st Century,” *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 1 2015, pp. 49-50.

After the Gerasimov article was published in 2013, two very prominent Russian military authors, retired Major General I. N. Vorobyov and retired Colonel V. A. Kiselyov, discussed “Indirect Warfare in Cyberspace.” It is included here to demonstrate the breadth of the use of indirect operations in Russian thought. In the article they combined the concepts of indirect and asymmetric actions. The idea of the indirect approach, they note, was advanced by Liddell Hart and it focused on avoiding direct clashes, using maneuvers to divert attention, and striking at vulnerable spots. For Russia, a cyber-security plan must draw upon the strategy of asymmetric actions according to the authors. Included in this approach are the following points:

1. Replacing monotony and stereotypes with multiple functions
2. Combining centralization and decentralization instead of rigid hierarchy in command and control
3. Using joint efforts rather than each unit for itself
4. Using symmetry in place of asymmetry and asymmetry in place of symmetry
5. Using alternatives instead of set-course actions
6. Preempting against go-slow or wait-and-see attitudes
7. Using modules instead of open-ended formations
8. Using multipolarity in place of monopolarity
9. Using multiplicity instead of singularity.²⁶⁴

Finally, the authors stated that fire strike maneuver in cyberspace is performed to anticipate the adversary and is based on mobility and surprise. This meant preventing 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 electronic warfare and air defense maneuvers, and using one’s own software-hardware to destroy an adversary’s computer networks. New types of weapons are used as well: cyber weapons,

²⁶⁴ I. N. Vorobyov and V. A. Kiselyov, “Indirect Warfare in Cyberspace,” *Voennaya Mysl’ (Military Thought)*, No. 12 2014, pp. 21-28.

ultrahigh-frequency weapons, directed energy weapons, and others. Present-day warfare is a competition in intelligence, information and reconnaissance gathering, and navigational abilities.²⁶⁵

Cross-Domain Deterrence: An Indirect/Asymmetric Vector?

In 2008 retired General of the Army Makhmut Gareev, the President of the Academy of Military Science, stated that Russia must confront threats with flexible and asymmetric measures united by a common goal and concept of actions. To achieve this goal Gareev introduced the concept of strategic deterrence. He defined this asymmetric approach as 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 with threats of unacceptable consequences as a result of retaliatory actions.²⁶⁶

To deter or counter threats to Russia (which appear to be the US's Prompt Global Strike concept; a global ABM system; color revolutions; cyber-attacks; and an ISIS threat to the south), Putin's staff is employing some old methods, while developing new ones. Naturally nuclear deterrence remains at the top of the list of ways to counter threats from the US and will be used, according to Colonel-General Sergey Karakayev, commander of the Strategic Missile Force, until nuclear weapons "lose their deterring force as a result of technological progress or changes in the nature of international relations."²⁶⁷ Another source noted that Russia is creating "a system of strategic deterrence against which even in the remote future there will be no acceptable defense."²⁶⁸

²⁶⁵ Ibid.

²⁶⁶ 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.

²⁶⁷ *Interfax* (in English), 16 December 2015.

²⁶⁸ Konstantin Sivkov, "Essential and Sufficient: Status-6 System Leaves an Adversary No Choice," *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 2 Dec-8 December 2015.

It appears that Russia is utilizing a series of deterrent concepts (it is unclear if this is in fact a “system”) in an attempt to protect its proclaimed national interests and territorial integrity. The nature of these deterrent actions was highlighted in Russia’s December 2015 *National Security Strategy*, where it was stated that

Interrelated political, military, military-technical, diplomatic, economic, informational, and other measures are being developed and implemented in order to ensure strategic deterrence and the prevention of armed conflicts. These measures are intended to prevent the use of armed force against Russia, and to protect its sovereignty and territorial integrity.²⁶⁹

That is, Russia’s strategic deterrence concept appears to rely on implementing an interlinked package of measures.

Russia has two terms for deterrence, *sderzhivanie* and *ustrashenie*. The military uses the former much more often than the latter. The terms are defined as follows:

СДЕРЖИВАНИЕ (*sderzhivanie*) is defined as the deterrence of containment. It is used to limit the development of weapons or the use of military actions.

УСТРАШИТЬ (*ustrashit’*) is defined as deterrence through intimidation. It is used to frighten someone via fear.

In effect, the terms seem to be complimentary. Frightening someone can result in their containment. Containing someone can result in their being frightened. Russian deterrent actions today appear to include the following:

²⁶⁹ *On the Russian Federation’s National Security Strategy, President of Russia’s Website*, 31 December 2015.

Equal security: President Putin is pushing the term equal security again, a concept that implies that all countries should be “equally secure” with their own air defenses, missile deployments for deterrent purposes, and so on. The Soviet-era military encyclopedia defines the principle of equal security as follows:

Basis of approach to resolving the problem of the correlations of arms and military forces between the countries of the socialist community and the capitalist states on the principle of parity... it is expressed in the formula ‘no detriment to either party.’²⁷⁰

A May 2015 article at the Russian news website *Svobodnaya Pressa*, offers an insight into this deterrent concept. The article is authored by two well-known military thinkers in Russia, Aleksandr Perendzhiyev, from the Association of Independent Military Political Experts, and Colonel General Leonid Ivashov, a member of the Academy of Geopolitical Problems.²⁷¹ They advocate developing a direct threat to the US homeland with nonnuclear deterrents. They believe Russia should utilize deterrence via collective security strategies in South America in order to counter US moves in Europe. The authors advanced the idea of creating a joint troop grouping in Nicaragua with China, and putting Russian troops in Venezuela and Brazil. More ominous was the suggestion of placing a task force off the coasts of the US, so that it would have American territory in its sights. That clearly implies a task force stationed in Cuba. Such a “grand coalition” could include India as well. Russia should “organize a major diplomatic and information offensive” when creating this security alliance.²⁷² In 1962 it was possible for the US to find Russian missiles in Cuba and, through the negotiation

²⁷⁰ N. V. Ogarkov, Main Editor, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 1983, Moscow: Military Publishing House, p. 591.

²⁷¹ Andrey Ivanov, interviews with Aleksandr Perendzhiyev and Leonid Ivashov, “United States Transitioning to ‘Number One’ Combat Readiness. Any Provocation Would Give the United States the Opportunity to Attack Russia,” *Svobodnaya Pressa (Free Press)*, 7 May 2015.

²⁷² Ibid.

process known as the Cuban Missile Crises, get them off the island. The missiles were placed there by the General Secretary of the Soviet Union, Nikita Khrushchev, reportedly to offset US missiles in Turkey that had attained an “equal security” advantage. If you threaten us with missiles near our border, the Soviet thought went, we will do the same to you. If Russia creates a task force in Cuba as the authors suggest with a nonnuclear deterrent such as UAVs it will be much harder to find them. They could be hidden in buildings or hangers. This type of deterrence involves the mutual threatening of the other’s homeland, and involves the establishment of threat parity among nuclear or missile forces.

Information: In November 2015, Russian TV carried images of supposed “top secret” schematics of a Russian naval torpedo, the Status-6. The torpedo allegedly carries nuclear warheads and supposedly can travel up to 10,000 kilometers, making it capable of striking the western shores of the US and creating a tsunami in the process. The Russian press labeled this action as “deliberate stove piping” to deliver an information bomb. The torpedo would be impossible for either Prompt Global Strike or a Global ABM to detect or intercept. Of interest is that the torpedo’s development may not even be complete,²⁷³ but just the suggestion of such a capability can help to deter an opponent, who is uncertain as to the validity of the claim. A month later Russia stated that it’s “Rus” deep-diving submersible, part of the secret Defense Ministry’s Main Directorate for Deep-Sea Research, had transmitted information from NATO’s underwater intercontinental communications cables. The Rus can descend to 6,000 meters with a crew of three hydronauts, where it can carry out technical, emergency rescue, photography, video filming, or scientific research operations.²⁷⁴ This type of deterrence uses information to intimidate opponents and could be termed “information deterrence” that relies on passing technological parameters of nuclear capabilities that can exist in places that are extremely hard to detect and intercept.

²⁷³ Sivkov.

²⁷⁴ No author listed, “Secret ‘Rus’ Surfaces Successfully,” *Argumenty Nedeli Online (Weekly Arguments Online)*, 17 December 2015.

In the Russian Defense Ministry's 2011 *Conceptual Views on the Activities of the Armed Forces of the Russian Federation in Information Space*, deterrence was seen to exist as an asset in information space in the following way:

Deterrence and conflict prevention: develop an information security system for the Russian Federation's Armed Forces that can deter and resolve military conflicts in information space; remain in a constant state of readiness; expand the group of partner states; conclude, under UN auspices, a treaty on international information security; establish control over the escalation of conflict; take priority steps to counter the development and spread of a conflict; neutralize factors leading to the conflict's spread; and shape public opinion means to limit the ability of instigators to further escalate the conflict.²⁷⁵

Space Maneuvering: A Russian satellite “parked itself between two Intelsat satellites in geosynchronous orbit for five months this year” and maneuvered at times to within ten kilometers of these vehicles.²⁷⁶ Roscosmos declined to comment on the matter, and the Russian Defense Ministry said it would “look into the situation.”²⁷⁷ This maneuvering was designed to imply capabilities to offset the Prompt Global Strike and Global ABM concepts that are seen as direct threats to Russia. In addition, Strategic Missile Force commander Karakayev noted that plans envisage fundamentally new means and techniques for penetrating any missile defense system.²⁷⁸ This type of deterrent force relies on the development of new ways to put obstacles in the path of Western capabilities or to find ways to knock them out of commission with new

²⁷⁵ “Conceptual Views on the Activities of the Armed Forces of the Russian Federation in Information Space,” Ministry of Defense of the Russian Federation, 2011.

²⁷⁶ *Interfax* (in English), 12 October 2015.

²⁷⁷ *Ibid.*

²⁷⁸ *Interfax-AVN Online*, 16 December 2015.

technologies. It is also a way to demonstrate capabilities, which often have a deterrent effect.

United Nations Decisions: Russia is using the UN to support its legal claims to areas it says are within the nation's proclaimed "national interests." This applies in particular to the Arctic, where Russia has spent much time and money mapping the Arctic Sea. If Russian representatives can prove their case with images or numbers, it may be able to reserve for itself exclusive access to the region's oil and gas riches. Russia would, in effect, deter other nations from the region. Likewise, Russia is using the UN to present its case for defining and limiting cyber means, or what is called "information weapons," in order to prevent other nations from intruding on Russia's information sovereignty (and coincidentally limiting the populace's access to information); and to use legal means to prevent an arms race in space, which has the primary goal of getting rid of the US's Prompt Global Strike weapon. This type of deterrent force relies on legal issues and winning negotiated settlements, and supports containment more than intimidation.

International Security Arrangements: In order to confront NATO and the EU, Russia has developed a close association with several organizations, most notably the Shanghai Cooperation Organization and the association of economies known as BRICS (Brazil, Russia, India, China, and South Africa). Russia seems closest, however, to China, since both have a communist past (and present, in China's case) that introduces into their thought processes similar patterns (control over information, the use of the dialectic thought process, etc.). This type of deterrence is somewhat patterned after the equal security concept, in that a type of parity is established with the use of international organizations that indicate Russia isn't facing the world alone.

Military Deterrence: Of course, Russia is continuing to develop its military capabilities and to threaten other nations with military activities with cyber actions, air incursions of territorial sovereignty, or military deployments. For example, they have created a new bridgehead in Crimea, from which it could move quickly into Transdniester or Ukraine; and of course they are militarizing the Arctic. The Defense Ministry is quickly modernizing its equipment and has long-term plans

for not only its aerospace force but also its strategic rocket, ground, and naval forces. By developing modern electronic warfare, armor, cyber, robotics, unmanned aerial vehicles, and other such equipment, the military can both contain and intimidate its neighbors and make them think twice before engaging in activities that might be noted as harmful to Russia (NATO expansion, etc.). President Putin has also ordered his military to engage in opportunistic and threatening activities, such as conducting probes of air space belonging to the Baltic nations, buzzing US and NATO ships, making nuclear threats, or moving strategic or operational missiles (Iskander, etc.) up to its borders. Recent flights over the US no longer look at just military installations but also at specific points of infrastructure. For what purpose? To deter what, a Baltic invasion? Just the concept sounds like nonsense, but it is a threat that Russia has created.

A conclusion to be reached here is that Russia has noticed that technological progress is changing the parameters regarding ways to deter an opponent. For example, maneuverable hypersonic weapons may be able to bypass ABM systems. Nano weaponry may be hard to find yet can pack a wallop. The nature of international relations is changing as well, as we are now much more connected globally than ever before—by the media, satellites, and optical fiber. Russia's Status-6 nuclear torpedo, whether real or imaginary, is a good example of using the media for deterrent purposes. Russia is working to create a system of strategic deterrence against which there may presently be no acceptable defense. Times are changing and Russia is creating these new deterrent methods, both nuclear and nonnuclear, to contain and intimidate its neighbors and their partners.

Reflexing the Adversary and the Civilian Population

Russia has offered a great example of an asymmetric vector conflict with its reflexive control (RC) theory. It is likely that RC has been used in the Ukrainian conflict. RC is a concept that was developed and used in the Soviet era. It is defined in several ways, depending on the author. In general it is a means of conveying to a partner or an opponent specially prepared information to incline him to voluntarily make the predetermined decision desired by the initiator of the action. It is particularly effective in provoking an opponent to take a desired action.

NATO forces should wonder if, based on Russian actions in Ukraine, they unintentionally achieved a goal of Russia's choosing—recreating the Cold War threat. NATO, of course, had little choice but to respond to calls from Baltic and East European nations for protection. By doing so, it recreated the “NATO threat” for Russia, which it now trumpets loud and clear as the reason for their new military doctrine and increased defense spending. To a Westerner, it is doubtful that this could have been the case, but the example does offer a new way of considering what has transpired.

Even though the theory was developed long ago in Russia, it is still undergoing further refinement. Recently the theory has been used in conjunction with concepts such as friendly embraces, simulacrum, analogies, stimulated reactions, and creative and destructive applications. In the past several years the concept has been used in articles about network-centric warfare, information weapons, deterrence theory, and 21st century tactics. In other words, the concept has not lost its utility.

The foremost RC theorists of the past in the military sector included V. V. Druzhinin, M. D. Ionov, D. S. Kontorov, S. Leonenko, and several others. Even at that time, RC was considered an information warfare means. For example, Major General N.I. Turko, an instructor at the Russian Federation's General Staff Academy, established a direct connection between information warfare/information operations and RC when he wrote about the concept in the 1990s, stating that “The most dangerous manifestation in the tendency to rely on military power relates more to the possible impact of the use of reflexive control by the opposing side through developments in the theory and practice of information war rather than to the direct use of the means of armed combat.”²⁷⁹

²⁷⁹ A. A. Prokhozhev and N. I. Turko, “The Basics of Information Warfare,” report at a conference on “Systems Analysis on the Threshold of the 21st Century: Theory and Practice,” Moscow, February 1996, p. 251.

The implication is that even then, nonmilitary issues were important. In 2013 two interesting articles on RC appeared in the journal, *Military Thought*. The first, by V. L. Makhnin, has the most potential application to the ongoing conflict in Ukraine, especially as it applies to the media. He notes that going from the reflection of cooperation to that of conflict can break the will of the adversary's military and political leaders. This is known as strangling the enemy in a "friendly" embrace.²⁸⁰ One is reminded of the Putin-Poroshenko meeting for a truce that was immediately followed by a Russian military invasion of Ukraine. Was Poroshenko strangled in the "friendly" embrace? One should closely observe recent cease-fires to see if the same "friendly" embrace repeats itself.

Makhnin stated that the organization of the reflexive process between opposing combat systems is related to the development and implementation of a series of measures to supply the reflexed combat system with interests, motivations, and reasons. These measures combine to create a desired operational-tactical situation and provide an incentive for making desired inferences and conclusions that benefit the friendly decision-maker.²⁸¹ The use of the reflexive process leads to the following:

An analysis of the past experience in preparing and conducting operations, combat actions, engagements, and other tactical actions with the purpose of misleading the adversary in plans conceived by commanders shows that reflexive influence on the adversary was confined to forming a simulacrum, that is, false-real, information, and psychological images of objects, processes, and phenomena. Reflexive influence using simulacra

²⁸⁰ V. L. Makhnin, "Reflexive Processes in Military Art: The Historico-Gnoseological Aspect," *Voennaya Mysl' (Military Thought)*, No. 1 2013, p. 40.

²⁸¹ *Ibid.*, p. 34.

paralyzes the adversary's (decision-makers) intelligent (creative) activity.²⁸²

Simulacrum (images or representations of reality), naturally, are closely associated with the formation of a "new reality."

Yet another way to induce reflection, according to Makhnin, may be the most interesting and it involves the use of analogies. Drawing analogies in RC over an adversary enables one to draw inferences and thus obtain new knowledge. Analogy, in general, can be used to discuss subjects that cannot be observed. In military art analogy is a cognitive approach that helps one develop concepts and a new way to achieve the purpose of specific actions. One is reminded of the use of the fascist and Nazi analogy in reference to people fighting in Maidan Square against Ukrainian President Viktor Yanukovich, an analogy drawn to acquire support from the Russian population. Russians well remember the Nazi onslaught against Stalingrad and Leningrad in World War II, and so this analogy touches a raw nerve in them. Was the population a recipient of a form of internal RC through analogy? Most likely it was.

Russia's leaders worry constantly over internal threats to its stability, especially hoping to avoid the development of a "color revolution" there. There has even been talk of a new military doctrine that must address internal threats. Analogies can reflexively serve as a strong unifying force for a population with a strong historical predilection, as is the case for Russians and their memories of World War II.

Another Makhnin comment is that the reflexive approach allows commanders to uncover an idea unknown to himself or one's opponent "at the moment."²⁸³ Interests, motivations, and reasons that shape the operational-tactical situation are conveyed to an adversary and stimulate his reasoning and conclusions, which can produce more reflexive input

²⁸² Ibid., p. 37.

²⁸³ Ibid., p. 46.

by Russian commanders. It could be a desire to make an opponent slow down his operations, abandon plans, and make irrational decisions, he notes, which could be exactly what is happening in Ukraine.

Makhnin describes what he terms as creative and destructive reflexive functions. The former develops “in a situation when the struggle goes on at a slow pace and, accordingly, the operational-tactical situation changes slowly as well, when the opponents’ objectives are clear, and the way to reach them has been figured out.”²⁸⁴ Clearly the slow pace of the five month conflict has offered Russia the opportunity to thwart opinions that have developed against the support Russia has provided the separatists or to manipulate them, and to keep Ukrainian forces from taking control of pro-Russian-controlled territory. Destructive reflexive functions refer to a commander’s concept that is based on a tested way of action or an old idea.²⁸⁵

The second article on RC control (which could also apply to actions in the Ukraine conflict at the combat or even diplomatic level) was written by V. G. Kazakov and A.N. Kiryushin. The authors ask “is it possible, apart from ordering about subordinates, to control people or groups that are not directly subordinated to one’s own control body or decision-maker?” Since the time of Sun Tzu this has been done through deception or premediated actions, they note, which make the enemy believe in things that are not true.²⁸⁶

Kazakov and Kiryushin discussed the concept of complex or double-track control over combat actions:

By dividing the control concept into command control (legitimizing manipulation of subordinate forces in an effort to accomplish a mission) and reflexive control

²⁸⁴ Ibid., p. 44.

²⁸⁵ Ibid.

²⁸⁶ V. G. Kazakov and A. N. Kiryushin, “Complex Management of Military Actions,” *Voennaya Mysl’ (Military Thought)*, No. 7, 2013, pp. 61-67.

(seeking to stealthily control enemy forces to create hindrances or frustrate their combat missions), we put a somewhat different sense into this classification that expands the scope of research into the control factor in general and control over combat actions in particular, and put it forward in a new, other than a pedagogical format.²⁸⁷

They add that such control over combat actions needs to result in drawing up superior plans to employ reflexive control and maneuver the enemy into a managed position, resulting in what they term as “reflexive superiority.” The reflexive environment or reality of combat are the shared realm of two opponents, and there they “clash for priority and superiority of their strategies of reflections, ideas, and decisions” that translate into warfare. The authors add that reflexive control expert V. A. Lefebvre, who developed the theory of reflexive control, believes that RC is “influencing the enemy in a way that sways him into making a decision expected of him by the transmitting side.”²⁸⁸

Interestingly the authors also quote V. L. Makhnin, who stated that “applying compelling influence is central to RC as a way to constrain the generation and absorption of new knowledge, paralyze creativity by the opposing combat system’s commanders and staffs, and constrict the scale on which the opposing combat systems’ operational (combat) potentialities can be exploited.”²⁸⁹ This requires the development of an “information package,” which is a RC message, put together for the enemy to make a decision. It thus is important to understand what an opposing commander “sees” and how he might subjectively respond. Again, like Makhnin, the authors think it is important to rely on the use of simulacrum, this time in the form of an information package to influence enemy decision-making.²⁹⁰

²⁸⁷ Ibid., p. 63.

²⁸⁸ Ibid., p. 64.

²⁸⁹ Ibid.

²⁹⁰ Ibid.

Meanwhile the Russian military is exercising other types of RC. For example, it is conditioning the West to Russian exercises along Ukraine's border. After a period of time these exercises appear less important to observers on the other side of the border. Simultaneously, Russia's military looks for a pretext to act. Pretext and conditioning are two sides of the same coin when it comes to RC. They assist one another, with the pretext usually the result of a mistake in an opposing side's understanding of a Russian conditioning exercise.

Conclusions

This article has offered Russian viewpoints on its military operations in the 21st century. It has focused on Putin's creation of a new reality, one that used opportunity and asymmetric and indirect operations to advantage. By focusing on hybrid war, the West misses the nuances of these military actions. While Western analysts ascribe Russian actions as the integration of a host of methods, as the term hybrid implies, Russia is searching for a unique logic to apply to each conflict. Indirect operations, for example, can aim to influence international institutions or decision-makers instead of fighting on the battlefield. Nor do Western analysts pay attention to the changing nature of RC theory, which in the physical domain attempts to condition opponents or to cause them to react to specific agents of influence or pretext; or, in the cognitive domain, where RC theory attempts to manipulate the facts to which a domestic audience is disposed to believe in and affect emotions. RC is based on influence and deception.

The use of the general term hybrid causes analysts to lose sight of the various vectors of an indirect, asymmetric, or nonmilitary approach. The hybrid term is too general. For example, it is apparent that Russia's military incursions into Crimea and eastern Ukraine were not only calculated but, at times, opportunistic. For some time (since at least 2005) the General Staff had been discussing the arrival of warfare's new nature and had undertaken the study of different forms and methods of implementing the use of information influence, surrogates, and Special Forces in indirect or asymmetric ways. As actions in Maidan unfolded, the General Staff saw a chance to implement some of these methods. Their military moves were accompanied by a brutal and aggressive

propaganda campaign to create an enemy image that helped implement these actions. The use of referendums were probably “on call” missions that developed unexpectedly, but were seen as additional great windows of opportunity. These actions were not hybrid but asymmetric, non-military, indirect, and on-call at times.

Had Yanukovych remained in power in Kiev, these actions probably would not have been undertaken in Ukraine. Unfortunately, as a result of his fleeing to Russia, Putin decided that he had to respond aggressively, and now the West is faced with an entirely different geopolitical situation, as the request for US forces by Baltic countries and the increased vigilance of former Warsaw Pact members implies. The potential Russian use of energy supplies as a countersanction or force deterrent must also be considered.

Unfortunately, chances for the West and Putin to come together and improve the situation do not appear likely in the short term, especially since Russia continues to pressure first Ukraine and now Transdnister and Kazakhstan through numerous troop rotations and actions on their borders. The opening of a new front in Syria presents additional problems. Russia seriously misread Western intentions, and the Kremlin’s leadership transitioned into an arrogant and mistrustful regime. Russian policy has resorted to the bullying and invasive techniques reminiscent of its Soviet past, using the same chicanery as before.

The creative thinkers inside the Russian General Staff have placed their Western counterparts in a quandary. Putin, it is thought, will continue to present Western leaders with troublesome decision points that are designed to test their resolve and commitment. He will make future moves while playing yet another card in his favor, that being the series of conflicts (ISIL, Syria, etc.) and other issues (Ebola) that are plaguing other regions and involving Western forces. The Western security community is thin when it comes to response mechanisms as it confronts several emergency situations simultaneously. It will have some tough decisions to make in the near future. Meanwhile, Putin will most likely try to wait them out, make moves when the situation dictates, and

peck away at Western influence. But at the same time it must be noted that Russia's forces are presently overextended.

PART TWO: FUTURE WAR

NEW TECHNOLOGY & FUTURE WAR

UAVs



Ratnik

Science
Companies

QUANTUM
ENTANGLEMENT

Cyber
Nanotechnology

Strelets

Robotics



CHAPTER FOUR: NEW TECHNOLOGIES AND EQUIPMENT

Introduction

For many years now Russia has been well known for its ability to develop reliable weaponry. Much of this notoriety is due to the worldwide success of the Kalashnikov rifle as a trademark example. The rifle's developer, Mikhail Timofeyevich Kalashnikov, passed away in December 2013, but his memory and the genius behind his 1947 creation live on. Today Kalashnikov assault rifles, sniper rifles, carbines, and pistols make up 90 per cent of Russia's small-arms output. The Kalashnikov Concern has expanded to include unmanned aerial vehicles (UAVs), naval craft, and remote-controlled modules for installation on armored vehicles, among other developments.²⁹¹ Other weapon firms are continuing this push to expand and reform the arms industry.

In March 2015 the Russian Ministry of Defense issued a public statement on its goals and tasks for weapon and equipment developments for the year. Strategic nuclear and aerospace forces (see Chapter Five) were mentioned first, followed by the need to make quality adjustments to strategically important regions of the Russian Federation. The latter included the requirement to create a military infrastructure and the deployment of Arctic subunits on the Novaya Zemlya Archipelago, Kotel'nyy, and Vrangl Islands (see Chapter Eight for a detailed description of Russian activities in the Arctic). Upgrading subunits in Crimea and the Kaliningradskaya Oblast were also mentioned.

Of importance for this chapter was the next section of the document, which discussed how to outfit the Armed Forces with state-of-the-art arms and special equipment.²⁹² It was noted that such

²⁹¹ *Rossiya 24 TV (Russian 24 TV)*, 14 June 2015.

²⁹² "Public Statement of the Russian Federation's Defense Ministry's Goals and Tasks for 2015," *Ministry of Defense of the Russian Federation Website*, 26 March 2015. Other tasks noted on the website were the manning of troops, combat training under near-combat conditions, resolving social problems of servicemen and their families, and

equipment must comprise 30 percent of all equipment by the end of 2015. Main priorities included nuclear deterrence forces; aerospace defense assets; communications, reconnaissance, command and control, and electronic warfare (EW) systems; UAVs; robotized attack complexes (see Chapter Six); military-transport aviation; precision-guided munitions and means of combating them; and servicemen's individual protections systems.²⁹³

The weaponry chosen for examination in this section are UAVs, several items of individual equipment (Ratnik, Strelets, C3I gear, and invisibility cloaks), several items discussed at the June Army-2015 Forum, electronic warfare equipment, and a few items of equipment associated with command and control or armor.

UAV Types by Agency, District, or Service

Over the past two decades unmanned aerial vehicle (UAV) use has exploded. Most of the major countries of the world have various shapes and sizes of drones in their military inventories, and there are even more in the civilian world. Terrorists also have access to “off the shelf” model airplanes that can be turned into drones. Not only are they used on a massive scale but also their performance and employment characteristics have changed dramatically. According to one Russian source, UAVs can “conduct aerial reconnaissance day and night, engage in electronic warfare, deliver strikes against key targets deep inside the enemy's order of battle, guide strike weapons to targets they have acquired, produce detectable reflections from targets, and verify fire effects...”²⁹⁴

Russia has kept pace with its own updated UAV developments. It now has many different types of UAVs, and they are present in all types

conducting military parades associated with the 70th anniversary of end of World War II.

²⁹³ Ibid.

²⁹⁴ R. A. Belous, Yu. G. Sizov, and A. L. Skokov, “Air Defense against Massive Enemy UAV and HPW Attacks,” *Voennaya Mysl' (Military Thought)*, No. 6 2013, pp. 64-71.

of forces: army, navy, air force, the Federal Security Service (FSB), law enforcement, and emergency affairs directorates, among others. As with other nations, Russia's UAV force is used for reconnaissance, precision attack, transmission of intelligence, unmanned combat air systems, patrols, monitoring, communications, data transmission, combat missions, and the identification of the source of radio waves. Russia has used training grounds in the Arctic, Armenia, and Tajikistan to test various geographical and climatic conditions and on its border with Kazakhstan, Ukraine, and several other border nations. In December 2014 Defense Minister Sergey Shoygu stated that as many as 179 UAVs had been delivered to armed forces units in 2014. One report noted that the number of UAVs was doubled and flight hours quadrupled after 2013. Russia now has a state UAV center as well for training specialists.²⁹⁵

This summary will first examine the types of UAVs that each ministry desires. It will then focus on the specific characteristics of UAVs covered in the Russian press, and will conclude with a few descriptions from the specialized journal *Military Thought* as to how Russia plans to counter foreign, in particular US, use of UAVs. *Military Thought* also has several articles on how UAVs are used in the Russian Armed Forces districts and during exercises.

Specific UAV deployments by agency, district, or service include the following:

General Staff. The General Staff has established a new directorate focused only on unmanned aerial vehicles. The Orlenok, Camcopter S-100, Grusha, and Story-PD UAVs were mentioned.²⁹⁶

Main Intelligence Directorate (GRU). Russia's military intelligence directorate is forming UAV companies. They are equipped with Orlan,

²⁹⁵ *Interfax* (in English), 22 December 2014.

²⁹⁶ "Unmanned Alabino: Defense Enterprises Battle among Themselves for the Defense Ministry's Attention," *AviaPort*, 12 July 2013.

Eleron, and Takhion UAV systems, and they also have the Fara-VR man-portable short-range radar and the Sobolyatnik-O medium-range radar stations. The Orlan is designed for monitoring extended areas and objects in inaccessible terrain, as well as search and rescue missions. The Eleron-3SV is a special-purpose short-range reconnaissance system.²⁹⁷

Military Districts.

(a) Western District. The Granat (boosts the effectiveness of artillery fire), Zastava (aerial reconnaissance and target designation), and Orland UAVs are the ones used most often.²⁹⁸ An earlier report, however, stated that the Eleron (special close-range reconnaissance device) and Takhion (all-weather reconnaissance, control, and communications relay) UAVs are also used in the district.²⁹⁹

(b) Southern District. The Grusha, Orlan, Granat, Zastava, Leyer, and Forpost UAVs have operated in the Southern District.³⁰⁰ On 19 August it was reported that missile and artillery troops use the Orlan, Zastava, Granit, and Leyer UAVs for fire adjustment.³⁰¹

(c) Central District. The Zastava, Granat, and Leyer UAVs are operating in separate district motorized infantry brigades. The Leyer is designed for radio reconnaissance, detection of radio emissions, and jamming of radio-electronic means.³⁰² A separate UAV company has been activated in the Central Military District, where there is a peacekeeping formation. Orlan-10, Leyer-3, Takhion-3, and Eleron-3

²⁹⁷ "Russia's Military Intelligence to Form Remotely-Piloted Aviation Companies," *RIA Novosti Online (RIA News Online)*, 5 November 2013.

²⁹⁸ "Western Military District Formation Commanders Are Studying Unmanned Air Vehicles Capabilities," *Ministry of Defense of the Russian Federation*, 3 October 2014.

²⁹⁹ Yuriy Gavrilov, "Western Military District Servicemen Test new Drones," *Rossiyskaya Gazeta Online (Russian News Online)*, 5 July 2014.

³⁰⁰ "Flying Time of Unmanned Aerial Vehicles Has Been Increased by One-Third in the Southern MD," *Ministry of Defense of the Russian Federation*, 30 June 2014.

³⁰¹ *Interfax* (in English), 19 August 2015.

³⁰² *Interfax-AVN Online* (in English), 15 January 2014.

portable complexes make up the new company.³⁰³ Several squadrons of UAVs will receive hand-launched Eleron-3 drones, which can obtain information within a radius of up to 25 km. They use GLONASS and GPS navigation systems and are equipped with TV and infrared cameras, a relay station, and signals-intelligence and jamming stations.³⁰⁴ The Takhion UAV was used in Central Military District Spetsnaz exercises. They are all-weather mobile reconnaissance sets that permit them to supply command posts with information. AF formations have Navodchik-2, Zastava, and Eleron-3 SV UAV's among others.³⁰⁵ In August Orlan-10 and Forpost reconnaissance operations commenced. They helped find and destroy with Grad missiles.³⁰⁶

(d) Eastern District. In 2013, the Grusha UAV was designated as the UAV of choice. It can stay aloft for 1.5 hours at a height of 500 to 1,000 m.³⁰⁷ It was upgraded in the first quarter of 2015, adding new engines, improved video and photographic equipment, and also thermal imagers. The latter will help the UAV track ground objects by temperature changes, allowing it to find people and equipment.³⁰⁸ Specially equipped Leer-3 UAV systems have been acquired. It is an entire technological system that includes a pair of Orlan-10 drones and a catapult launch. Its range is up to 120 kilometers at altitudes of up to

³⁰³ "Central Military District Peacekeepers Received a UAV Company," *RIA Novosti (RIA News)*, 17 December 2014.

³⁰⁴ *Interfax* (in English), 29 January 2015.

³⁰⁵ Taras Rudyk, "In Reconnaissance with a Takhion UAV: They Permit the Spetsnaz to Observe the Enemy from Siberia in the Online Mode," *Krasnaya Zvezda Online (Red Star Online)*, 21 May 2015.

³⁰⁶ Yuriy Gavrilov, "Grads Struck at the Border. The Targets for the Missile Attack Were Prompted by Drones," *Rossiyskaya Gazeta Online (Russian News online)*, 19 August 2015.

³⁰⁷ Petr Asanov, "Eastern Military District: Combat Training under Way: Reconnaissance from the Sky, Fire from the Ground," *Suvorovskiy Natisk (Suvorov's Charge)*, 9 November 2013.

³⁰⁸ Igor Zarembo, "Russia's Eastern Military District Will Equip Drones with Thermal Imagers," *RIA Novosti (RIA News)*, 22 January 2015.

5,000 meters, with an Orlan flight duration of 10 hours³⁰⁹ (another source said the Orlan-10 can fly for up to 18 hours at an altitude of 5,000 meters). Motorized rifle formations will receive the Leyer-3 UAV. It can jam communications, interfere with radio operations of an enemy, and can update terrain relief, among other functions.³¹⁰

Navy. In 2014 the Pacific Fleet in Kamchatka received several drone systems, but a specific type was not identified.³¹¹ The Northern Fleet's underwater counter-sabotage force will soon get tactical UAVs.³¹² Much earlier, in 2013, it was reported that the Pantsir-SM anti-aircraft missile and gun system would be placed in the Arctic to counter UAVs there.³¹³

Army. In 2013 it was reported that the Defense Ministry was to buy 17 Eleron UAVs for observation and the collection of intelligence information for the ground forces. The Eleron 3 and -10 systems work in various climatic zones, whether it be ice and desert, the tropics and taiga, or boggy and mountainous localities.³¹⁴ Russia reportedly is also developing ground drones, some of which are quite large, such as big amphibious models. The military police are also looking at using UAVs in their work.³¹⁵

³⁰⁹ Unattributed report, "Electronic Warfare units in the Far East Will Get Leer-3 Drones," *Rossiyskaya Gazeta Online (Russian News Online)*, 28 June 2015.

³¹⁰ "Leyer-3s Will Become Operational with Motorized Rifle Units on Sakhalin: State-of-the-Art Drones Will Keep an Eye on the Status of the Island's Military Infrastructure," *SakhalinMedia*, 21 October 2014.

³¹¹ *Interfax-AVN Online* (in English), 17 January 2014.

³¹² "The Northern Fleet Counter-Sabotage Forces Will Receive UAVs," *b-port.com*, 12 December 2014.

³¹³ "By 2015, Russian Federation Air Force Missile Troops Will Receive 'Pantsirs' That Down UAVs," *RIA Novosti Online (RIA News Online)*, 18 December 2013.

³¹⁴ Igor Solovyev, "Observation as Protection," *Krasnaya Zvezda Online (Red Star Online)*, 25 November 2013.

³¹⁵ Pavel Zhuravlev, interview with Viktor Zaytsev, "Russia's Military Police: Going Its Own Way," *Voyennyy Vestnik Yuga Rossii (Military Bulletin of the South of Russia)*, 17 January 2015.

Exercises. On 1 December 2013 the Multiservice UAV Center turned 30 years old. Among other things, it performs troop tests for UAVs. It participated in several recent exercises: Combat Collaboration-2011, Union Shield-2011, Center-2011, Kavkaz-2012, Barrier-2013, and Zapad-2013. In the past this has included the Zastava, Navodchik-2, Forpost, and Orlan-10 UAVs.³¹⁶ During Vostok-2014, Zastava UAVs were used.³¹⁷

FSB. A 2013 report stated that the FSB is testing UAVs fitted with 80-megapixel cameras and thermal imaging cameras for high-resolution operational mapping of terrain and for the monitoring of border areas. A Phase One IXA 180 SPECS digital camera has been ordered for the Ptero-SM UAV. Other undisclosed UAVs will also be used. It is thought that UAVs are much better for monitoring routes than, for example, the Tropa (Path) system used in Chechnya, where sensors were buried in the ground to identify enemy routes.³¹⁸ According to a 2014 Russian report, Ukrainian border guards have identified an FSB Zastava-type UAV along its border with Russia. Earlier the Ukrainians had shot down an Orlan-10 UAV.³¹⁹ According to another report, the FSB (and MOD) are interested in procuring a UAV of the Okhotnik family, or perhaps a UAV with the working designation Altius-M. This UAV appears to be able to stay in the air for four days and can intercept airborne targets, conduct close air support of ground forces, and perform reconnaissance and EW missions, as well as suppress air defense systems.³²⁰

³¹⁶ “Multiservice UAV Center Marks 30th Anniversary,” *Ministry of Defense of the Russian Federation*, 29 November 2013.

³¹⁷ “Correction of Artillery Fire during Strategic Command Staff Exercise Vostok-2014 Provided by Unmanned Aerial Vehicle Units of the Eastern Military District,” *Ministry of Defense of the Russian Federation*, 24 September 2014.

³¹⁸ “The Federal Security Service Will Adopt 80-Megapixel Cameras for Reconnaissance,” *Izvestiya (News)*, 27 December 2013.

³¹⁹ Vasilisa Yegorova, “Drone in Inventory of Russian FSB Spotted Over Ukraine. Ukrainian Border Guards Detect it in Kharkiv Oblast,” *Novyy Region 2 (New Region 2)*, 24 July 2014.

³²⁰ Aleksandr Stepanov, “A Heavy Strike Unmanned Aerial Vehicle Has Been Developed in Russia: It Will ‘Operate’ Both in Support of the Army and the FSB,” *MK Online (Moscow Komsomolets Online)*, 25 January 2015.

Law Enforcement. A 2013 report indicated that law enforcement was interested in obtaining Eleron-3SV and Eleron-10SV drones. More purchases of these systems were predicted for 2014, as well as the purchase of E-95M small aerial decoy systems and E-08 larger aerial decoy systems.³²¹ A Russian law enforcement agency has a contract for Aerob 4D drones. They have a takeoff weight of 30 kg and a payload of 5-12 kg. They can operate at altitudes between 100 and 5,000 m, and fly up to 500 km. Top speed is 180 km/hour. The drone is launched by catapult and lands using a parachute.³²² Law enforcement also has a contract for Voron-300 helicopter-mode UAVs. It weighs 45 kg, can carry a payload of 16-18 kg, and has a maximum speed of 50 km/hour and a maximum altitude of 2,500 m.³²³

Characteristics of UAVs

In 2014 Russia formed fourteen UAV divisions and some 179 drones were added to units. Overall the number of UAV flights doubled in comparison to 2014 and total flying time more than quadrupled according to the defense ministry.³²⁴ The numerous types of UAVs are listed here with their capabilities, in reverse (newest on top) chronological order based on date of publication. For the purpose of this review, this list only covers the years 2013-2015.

1. A prototype UAV, with the proposed name “Altair,” has been created at the Kazan Aviation Plant in Tatarstan. It reportedly has a takeoff weight of 5 tons, a length of 11.6 m, a wing span of 28.5 m, and a V-shaped fin that is 6 m long. Altair has two RED A03/V12 diesel engines. The UAV has a reconnaissance configuration and is equipped with an optical imagery station. Gazprom, the Defense

³²¹ *Interfax* (in English), 13 August 2013.

³²² *Interfax-AVN Online* (in English), 24 January 2014.

³²³ *Interfax-AVN Online* (in English), 14 January 2014.

³²⁴ *Interfax* (in English), 6 January 2015.

Ministry, and the FSB are all interested in the UAV.³²⁵

2. Early in 2015 Russia will start state trials of a system (the Takhion drone) fitted with fuel cells or an electricity generator as a power generator instead of accumulators. The generator weighs five kg, making the drone's maximum take-off weight about 25 kg. It will be able to fly for six hours.³²⁶
3. A K-7 UAV fitted with a diesel engine was developed. It had an endurance record of 28 hours in flight and its range was over 3,000 km. Its stabilizer is composed of a high tail with a link between a twin-boom fuselage. The working speed is 70-90 km/hour, and it has a cruise speed of 140-150 km/hour and a stall speed of 60 km/hour.³²⁷
4. One report noted that the missile-guns Pantsirs, Tunguskas, and the newest Verba portable surface-to-air missile (SAM) complexes will combat foreign UAVs.³²⁸
5. The Ptero-SM drone has an engine capable of 200 hours of flight. Hybrid power can extend flight time to 1000 hours. The drone's current range is 800 km at speeds of up to 145 miles/hour. Era-50 drones are also being developed along with the heavier Era-100 version.³²⁹

³²⁵ Timur Latypov, "First heavy Drone in Russia Sent up in Kazan..." *www.business-gazeta.ru*, 23 February 2015.

³²⁶ *Interfax* (in English), 13 January 2015.

³²⁷ *Interfax-AVN Online*, 30 December 2014.

³²⁸ Sergey Ptichkin, "Arsenal: A Drone Will Not Fly Past: Tactical Air Defense Systems Are Capable of Intercepting Any Targets," *Rossiyskaya Gazeta Online (Russian News Online)*, 29 December 2014.

³²⁹ Yuriy Gavrilov, "Reconnaissance Craft Will Silently Appear: Drones Will Fly More Quietly and Without Rudders," *Rossiyskaya Gazeta Online (Russian News Online)*, 26 December 2014.

6. Orlan-10s have arrived at the Black Sea Naval Station. They have a two-meter wingspan, use five liters of gasoline mixed with oil, and can spend eight hours in the air, reaching a distance of 150 km. Its primary mission is to collect information and conduct reconnaissance, take videos and photographs, and conduct direction finding of communications.³³⁰
7. Russia is developing an inertial system and a terrain correlation navigation system for UAVs whose operation is not tied to GPS or GLONASS. They will be installed in the Istra-10 and Istra-17 UAVs. The Istra-17 has a launch mass of 500 kg and can fly for 6 hours.³³¹
8. The Inter Branch (Multiservice) UAV Center, established in Latvia in 1983 and moved to Russia after the fall of the USSR, has 3-month courses. The Center currently graduates about 800 servicemen each year. UAV companies have been established in each of the motorized-rifle and tank brigades.³³² Other centers, such as the Chelyabinsk branch of the Air Force Academy and the 924th Combat Application and Training Center or Kolomna School,³³³ are also training UAV specialists.³³⁴
9. The Luch design bureau has reportedly developed a new UAV but it has not been named. This UAV weighs less than 4 kg, has two cameras with a 30-km

³³⁰ Yuriy Bogomolov, "For the Combat Readiness of the Highest Limits: They Can See Everything from Above," *Flag Rodiny (Flag of the Motherland)*, 25 December 2014.

³³¹ Timor Alimov, "Russian Combat Drones Will Be Able to Fly Without GPS or GLONASS," *Rossiyskaya Gazeta Online (Russian News Online)*, 24 December 2014.

³³² Viktor Litovkin, "They Installed UAVs Behind a Desk: Reporting from the Inter-Branch UAV Center," *Nezavisimoye Voyennoye Obozreniye Online (Independent Military Review Online)*, 6 December 2013.

³³³ "The First Group of Unmanned Air Vehicle Operators Has Completed Training at the Kolomna Conversion-Training Center," *Interfax-AVN Online*, 20 September 2013.

³³⁴ "Air Force Military Training and Scientific Center Has Begun Training UAV Specialists," *Center for Analysis of World Arms Trade*, 12 November 2013.

observation radius at altitudes from 50-3,000 m, and can fly around obstacles at low altitude. It can track a moving target and relay data to a control center in real-time.³³⁵

10. Inspector-202 UAVs are used for training. Take-off weight ranges from 3.5 to 4.5 kg, depending on how the UAV is modified.³³⁶
11. The Forpost UAV, using technology transferred from Israel, can stay in the air for 17.5 hours, with a maximum take-off weight of 454 kg and a payload of 60 kg, a flight speed of 210 km/hour, and a top altitude of 3,600 m.³³⁷
12. The September 2013 MAKS-2013 Air Show was divided into unmanned aircraft and unmanned helicopters. Russian mini UAVs included Eleron-3SV and Eleron-10SVs, Orlans, Ptero-UYe and Ptero-Sms, and Strekoza and Lastochka systems. Tactical UAVs included Dozor, Filin, Pchela, Tipchak, and Shmel. Medium-altitude long-endurance (MALE) UAVs were not listed by name and neither were the attack UAVs. Unmanned helicopters in the mini class were the ZALA 421-22 UAV, and the NELK-V4, NELK-V6, and NELK V-12 systems. Tactical-class helicopter UAVs were the mBPV-37 and the Voron 700. The intermediate class (MALE was not listed) included the BPV-500, and the heavy-class helicopter UAVs included the Roller and Albatros UAV projects.³³⁸

³³⁵ Konstantin Kantsidal, "The Veil of Secrecy Has Been Lifted Slightly," *Severnyy Kray (Northern Edge)*, 8 October 2014.

³³⁶ *Interfax* (in English), 3 October 2013.

³³⁷ *Interfax-AVN Online* (in English), 30 September 2013.

³³⁸ Denis Fedutinov, "MAKS-2013: Varied Palette of Drones. But Only a Few Real New UAVs Showed Up at the Show," *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 18 September 2013.

13. There is a 3-cm radar under development for the Korsar and Orion drones. It is estimated that this will ensure reconnaissance capabilities within 20-25 km.³³⁹
14. The Kamov Design Bureau has reportedly developed a UAV that can operate in Arctic conditions, among others. It can be transported on Mi-8 helicopters and can ascend to an altitude of 7 km, from where it can conduct reconnaissance up to 400-500 km.³⁴⁰
15. The Chirok UAV was demonstrated in July 2014. It has an air cushion chassis, permitting it to take off without a runway. The air cushion enables it to take off from soft ground, such as water, swamp, or surfaces. Maximum takeoff weight is 700 kg and the payload weight limit is 300 kg. It can climb to 6,000 m and has a range of up to 2500 km.³⁴¹ Another report noted that it resembles a “flying wing” due to its 10 meter wingspan and could become the progenitor of a series of such products.³⁴² In March 2015 it was noted that a “Big Chirok” had been produced, weighing over two-tons. The drone’s prototype could be ready in the summer.³⁴³
16. Granat-1 UAV complexes, at altitudes from 800 to 1500 m, transmitted target coordinates for the Msta-S self-propelled artillery pieces during an exercise. The Granat-1 is a part of the new Navodchik-2 UAV complex.³⁴⁴

³³⁹ *Interfax* (in English), 13 August 2014.

³⁴⁰ “Kamov Has Developed an Unmanned Reconnaissance Helicopter,” *RIA Novosti Online (RIA News Online)*, 5 August 2014.

³⁴¹ “Unmanned Vehicle for the Transport of High Precision Weapons on Display at Yekaterinburg Trade Show,” *Interfax-AVN Online*, 9 July 2014.

³⁴² Donat Sorokin, “Drone Test Areas to be Created in Russia,” *ITAR-TASS*, 15 September 2014.

³⁴³ *Sputnik News*, 11 March 2015.

³⁴⁴ “Central Military District Artillery Men Destroyed 200 Camouflaged Targets,” *RIA Novosti Online (RIA News Online)*, 2 July 2014.

17. Russia expected to acquire 40 Eleron-3SV UAVs in 2014. It has a photo camera, a thermal imager, and a video camera with 10-power magnification. It has a maximum take-off weight of 5.3 kg, a payload weight up to 1 kg, a top speed of 130 km/hour, and can climb to an altitude of 4,000 m. Landing is by parachute. It uses GPS and GLONASS for navigation.³⁴⁵
18. According to a June 2014 report Russia is developing a strike UAV with a weight of 20 tons, and it will fly for the first time in 2018.³⁴⁶
19. UAVs from the 1970s and 1980s (Strizh, Reys, Pchela-1, Krylo) are being recycled for nonferrous metals, silver, gold, and platinum. Reys worked at 500 m and could identify objects on the ground from 20 cm in size. It was used in the Caucasus. Strizh tested in 1980, and can go up to 6 km at 1,000 km/hr, covering 900 km in one sortie. Krylo is similar to Strizh. The Pchela-1 was used in the first Chechen campaign. These UAVs have been used as targets by more modern UAVs.³⁴⁷
20. The Voron 700 unmanned helicopter should be field tested by the fall of 2014. It has a transmission capability of up to 200 km, a gross weight of 120 kg, and a payload amount of 40-50 kg.³⁴⁸
21. The ZALA 421-22 is based on an eight-rotor design, with an empty weight of 7.5 kg and a payload of up to

³⁴⁵ Vladimir Bogdanov, no title, *Rossiyskaya Gazeta Online (Russian News Online)*, 8 June 2014.

³⁴⁶ Marina Lystseva, "A 20-Ton Russian Unmanned Strike Vehicle Will Complete a First Flight in 2018," *ITAR-TASS*, 2 June 2014.

³⁴⁷ Aleksey Krivoruchek, "Defense Ministry Will Destroy Obsolete Soviet Unmanned Aerial Vehicles; Ferrous and Nonferrous Metals, Silver, Gold, and Platinum Will Be Recovered From the Recycled Aerial Vehicles," *Izvestiya Online (News Online)*, 15 January 2014.

³⁴⁸ "State Trials of the Voron 700 Unmanned Helicopter Will Be Completed in the Fall of 2014," *Interfax-AVN Online*, 14 January 2014.

- 1.5 kg. Flight duration is 40 minutes. Photo equipment and a thermal vision system may be carried, making it possible to do night photography. It has a gyro-stabilized hovering capability that increases image quality.³⁴⁹
22. The Ptero-SM drone's take-off weight with a payload is 20 kg, with the payload weight being 5 kg. It can rise to an altitude of 3 km, with a 700-km range with a 5 kg payload and a 1200 km range with a 3-kg payload.³⁵⁰
23. The Vozdukhoplavatel reconnaissance, surveillance, and monitoring UAV was made with a flying wing design and pusher propeller. Launch weight is about 4kg, and flight duration two hours. The operating radius is 30 km.³⁵¹

Airborne Commander Vladimir Shamanov stated that he hoped there would be UAV elements in all parachute landing companies by 2016. Artillery, reconnaissance, special subunits, and air defense units of the airborne troops have them already.³⁵² Another report stated that the Strelets reconnaissance control and communications system is compatible with all Russian UAVs.³⁵³

Some Counter-UAV Thoughts

Defending against drones has become a huge issue due to their unprecedented proliferation. Companies such as Amazon or Domino's Pizza are thinking of using drones for home delivery. The early 2015 crash landing of a drone on the south lawn near the White House indicates how easy it is to intrude against even heavily guarded

³⁴⁹ "The ZALA 421-22 Will Continue Testing in the Near Future," *AviaPort*, 11-13 June 2013.

³⁵⁰ *Interfax-AVN Online* (in English), 5 February 2013.

³⁵¹ "State Tests of the Unmanned 'Vozdukhoplavatel' System Will Be Completed This Spring," *Interfax-AVN Online*, 4 February 2013.

³⁵² "Preparation of UAV Specialists Starts in Russia," *ITAR-TASS*, 4 September 2013.

³⁵³ *Interfax* (in English), 13 August 2014.

compounds. It is not hard to imagine terrorists planning to send drones against nuclear plants or other compounds. Potential counters to drones include regulations, sensors and radars, jamming, and destruction. Currently none of these systems can be considered “fail-safe” and able to protect structures.³⁵⁴

There are several Russian systems that can allegedly be used for counter-UAV missions. For example, in one article on the Pantsir-S1 system, which is capable of destroying a target flying at 1,000 m/sec, it was noted that the system “proved itself in the Crimea last year, where it shot down Ukrainian unmanned aerial vehicles.”³⁵⁵ The TOR short range air defense missile system (ADMS) and the OSA-AKMR (ADMS) can intercept UAVs, while radars that can acquire UAVs include the Kasta-2E2 and the IL122 Garmon, among many others.

The journal, *Military Thought*, has discussed counter-UAV use openly over the past several years. From 2012-2014 three such articles were written. In the first article, Russian military writers stressed the need for a basic defensive concept against drone attacks, one that develops methods able to assess their effectiveness. Aerial vehicles carrying guided and unguided warheads are the “principal weapons that are used against drones.”³⁵⁶ Among these weapons are portable and self-propelled surface-to-air missile systems, anti-aircraft missile and artillery systems, and stationary systems. Modern electronic warfare attack and electromagnetic pulse weapons are other means. For explosives designed to blast drones out of the air, high-explosive, fragmentation, armor-piercing, hollow-core, and incendiary anti-aircraft cannon fire is also suitable. Shells are tipped with contact detonators. Military scientists are concerned with figuring out several issues, such as the detection

³⁵⁴ Mark Thompson, “Can the Drones be Stopped?” *Time*, 23 February-2 March 2015, pp. 18-19.

³⁵⁵ “Has the Pantsir-S1 Undergone a Combat Test near Luhansk?” *Zolotoye Koltso Online (Golden Ring Online)*, 3 February 2015.

³⁵⁶ D. V. Lopatkin, A. Yu. Savchenko, and N. G. Solokha, “Defense Against Tactical Unmanned Aerial Vehicles,” *Voennaya Mysl’ (Military Thought)*, No. 2 2014, pp. 41-47.

capability of its radars, specifically their range of detection; an assessment of the probability of a drone being hit by a shell (a formula based on the number of shells fired and resulting probability of the drone being damaged or destroyed); and the number of a drone's vulnerable areas contrasted with its number of invulnerable areas. A problem today is assessing the effective scattering area (ESA) of a suspected drone. ESA's of birds are very similar when flying at low altitudes, especially in cities. ESAs or cross sections of .01-.03 m squared are most difficult to classify with accuracy. At 2 m squared it is easier to perform. Circular digital active antenna array scanners were hailed as an option that can supply reliable data. Further, shooting down single drones is much easier than contending with groups or masses of drones.³⁵⁷ Finally, the authors stated that they foresee the use of lasers as weapons and the use of hunter-killer drones that "destroy enemy aerial vehicles of the same species in flight."³⁵⁸

In a second article about air defense, this time against both UAVs and high-precision weapons (HPW), the authors initially exhibited a detailed knowledge of many of the most important UAVs in the US inventory. After that two-three-page analysis they discussed how to counter them by size. As with the article above, they stated that artillery, lasers, and EW capabilities would be used for short- and medium-range UAVs; and anti-aircraft missiles used for medium- and long-range UAVs. Of crucial importance is the ability of radars to detect UAVs at long range. The following was noted:

A significant advantage of the meter waveband and adjoining decimeter waveband is that the effective scattering surface of small-size targets is approximately an order larger than it is in the centimeter waveband and that for this reason small-size targets, such as drones, antimissile missiles, and warheads of HPW, can be

³⁵⁷ Ibid.

³⁵⁸ Ibid.

detected at a relatively long range and air defense weapons have a significantly easier task fighting them.³⁵⁹

Three different types of drones are dealt with in different ways. Stopping mini- or micro-drones is the most costly and least efficient, since they are so difficult to spot. Medium enemy drones are countered with Russian Tor, Tunguska, Strela 10, and Igla anti-aircraft systems, along with special-purpose systems. The latter include the use of masking techniques and aerosol screens to hide targets within a rather wide electromagnetic spectral waveband. Some believe these aerosol protection systems can be used under a heavy UAV attack. Larger drones (Global Hawk, MQ-9 Reaper, and mid-size Predators) can be handled with conventional piloted aerial attack vehicles. A final recommendation was in regard to dealing with a massive UAV attack. This requires the use of outside target acquisition capabilities (such as space-based weapon detection capabilities, etc.), EW capabilities (suppress UAV communications and control lines, etc.), individual and group protection systems against HPW (optoelectronic reconnaissance capabilities, etc.), and anti-aircraft UAV destruction capabilities (large ammunition stocks, etc.).³⁶⁰

The third article noted that the area over the tactical battlefield will witness the largest number of UAVs. UAVs can be detected at 100-400 m head on and at 150-700 m sideways. Those flying at 300-1000 m are practically impossible to spot, making reliance on radars an absolute necessity. The development of a new radar system capable of detecting small-size UAVs is an important way to provide air defense units with vital information about the threat. A suggestion was made to develop a wireless radar station based on a digital circular active antenna array that can conduct surveillance.³⁶¹

³⁵⁹ “Air Defense against Massive Enemy UAV and HPW Attacks”

³⁶⁰ Ibid.

³⁶¹ A. V. Zaitsev, I. I. Nazarchuk, O. O. Krasavtsev, and D. A. Kichulkin, “Special Methods for Fighting Tactical Unmanned Aerial Vehicles,” *Voennaya Mysl’ (Military Thought)*, No. 5 2013, pp. 37-43.

At the end of 2014, another system was highlighted, one already known to experts for years. The S-400 Triumf system was described as capable of hitting any present-day aerial target, whether the target be a reconnaissance vehicle or ballistic cruise missile. The S-400 can climb to 30 km or hit targets that are 10 m off the ground. It can simultaneously fire at 36 objects.³⁶²

Individual Equipment (Ratnik, Strelets, etc.)

Ratnik

As Russia researched its future soldier systems in 2013, it studied, among others, the Italian Future Soldier complex developed by Selex ES and the German Rheinmetall Future Soldier-Enhanced System. Russia's defense market at the time had opened up to foreign suppliers to an unprecedented degree.³⁶³

That situation has now changed, and Russia hopes to stop its reliance on foreign firms. It was noted in December 2014 that a decision on when to issue the Ratnik (Warrior) combat equipment to the troops would be made in a few months. The gear was designed by the Tochmash Central Research Institute. There are plans to produce 50,000 units. The system includes “firearms, sighting systems, body armor, as well as electronic communications and navigation systems.”³⁶⁴ The Kalashnikov AK-12 was chosen as the new “main” assault rifle in February 2015, and the total number of units to be purchased was raised to 70,000.³⁶⁵ Plans are underway to ensure that all components are Russian-made, with a target date of 2016 to accomplish the import-substitution program.³⁶⁶

³⁶² Inna Kieyeva and Yekaterina Izmestyeva, “Heavenly Shield. Who Guards the Capital’s Skies, and How,” *Argumenty I Fakty Online (Arguments and Facts Online)*, 8 December 2014.

³⁶³ Marina Malenic, “Russia Preps for Future Soldier System Trials,” *Jane’s Defense Weekly*, 16 January 2013, p. 23.

³⁶⁴ *Interfax* (in English), 26 December 2014.

³⁶⁵ *TASS*, 21 February 2015.

³⁶⁶ *Interfax* (in English), 22 February 2015.

The weight carried by a soldier has been reduced from 34 to 24 kilograms and the small arms that are part of the Ratnik have increased its effectiveness by 1.2 times. Integrated body armor protection has increased, and command and control and communications systems have been integrated with other elements. Overall operational effectiveness has increased at least 1.5-2 times, according to estimates.³⁶⁷

The Ratnik has been classified according to function as a protection, destruction, life support, and energy supply system. It has more than 150 components, including helmets, overalls, a headset with hearing protection, protective glasses, and a joint (knee and elbow) protection set. Reconnaissance instruments, a combat multifunction knife, sniper and other types of rifles, camouflage kits for winter and summer, optical and thermal-imaging gun sights, and an autonomous heat source are also included along with standard components (decontamination, first aid, etc.). Ratnik-2 is tentatively scheduled to appear in 10-15 years.³⁶⁸

Russian Deputy Defense Minister Yuriy Ivanovich Borisov even hinted that the Ratnik may have been used in Crimea. When discussing the technology, he noted that the so-called “polite people” looked “confident and comfortable in this personal gear and equipment when everything is at hand, when communications are well arranged, and when they have reliable and effective small arms.”³⁶⁹ In late May it was announced that the Armed Forces will receive 50,000 sets in both 2015 and 2016,³⁷⁰ for a total of 100,000.

In June a representative of TSNIITOCHMASH, the Central Research Institute for Precision Mechanical Engineering, stated that the

³⁶⁷ Yuriy Gavrilov, “Ratnik Has Reached the Troops,” *Rossiyskaya Gazeta Online (Russian News Online)*, 15 January 2015.

³⁶⁸ Ibid.

³⁶⁹ I. Korotchenko, “Deputy Defense Minister: Dynamic Outfitting of Armies Has Become a Worldwide Trend...” *Russkaya Sluzhba Novostey Online (Russian News Service Online)*, 25 January 2015.

³⁷⁰ *RIA Novosti (RIA News)*, 26 May 2015.

Ratnik can protect up to 95 percent of a soldier's body surface from fire and shrapnel. The integrated system of control and data exchange allows for drones and vehicles to exchange information with soldiers, while data about soldier welfare is sent to the command. Third-generation combat gear is under development. It will integrate different biomechanical devices, including exoskeletons. The gear will enable a soldier to withstand flamethrowers. Soldiers will be able to carry up to 300 kilograms. More importantly, equipment will be thought-controlled. A neural interface is planned for 2020.³⁷¹ In July it was announced that doctors were successfully testing the Arctic variant of the Ratnik.³⁷²

In December 2015 TSNIITOCHMASH announced that it planned to develop nine industrial technologies for Ratnik in 2016. These technological advancements were not mentioned, but the article noted that work on the creation of new-generation high-precision sniper systems would continue. In all, the article listed nearly 40 components of the existing Ratnik system.³⁷³

Strelets

In December 2014 it was announced that several thousand Strelets kits had been fielded. In each package is a commander's personal computer, satellite communications radio, a VHF radio, a range-finding and angle-measuring device, a Fara-VR portable short-range reconnaissance radar, an IFF system, standardized information transmission apparatus, and individual and group navigation systems operating with GLONASS and GPS data. They are incorporated into the Ratnik's combat gear. The modern reconnaissance, control, and communications system is supplied to peacekeeping subunits, reconnaissance scouts, and paratroopers. Strelets can interface with a variety of systems, to include UAVs. The kit identifies enemy facilities,

³⁷¹ Anton Valagin, "Russian Military Gear Will Include an Exoskeleton," *Rossiyskaya Gazeta Online (Russian News Online)*, 17 June 2015.

³⁷² Olga Vorobyeva, "Ratnik Undergoes Testing in the Arctic," *Krasnaya Zvezda Online (Red Star Online)*, 1 July 2015.

³⁷³ Mikhail Voskresenskiy, "Russia Developing Nine Technologies to Equip 'Soldier of the Future' Pack," *RIA Novosti (RIA News)*, 28 December 2015.

determines their coordinates, performs target designation, and prepares firing data. It helps squad members interact at a distance of 1.5 km. The PC can display the tactical environment against a backdrop of a digital terrain map.³⁷⁴

Strelets is now integrated into a new strike and reconnaissance system.³⁷⁵ The system is reportedly known as the Strelets reconnaissance, command and control and communications system [KRUS, or *kompleksa razvedki, upravleniya, i svyazi (KPYC)*]. Actually it is not much more than a tablet weighing just over two kilograms. KRUS can also work as a relay device. However, its main function remains as a transmitter of intelligence about the enemy to fire destruction units, greatly reducing the time from discovery to destruction of a target.³⁷⁶ In the view of one commander, Strelets allows commanders to “see” all of his subordinates and ascertain their physical state. The system can also take photographs of targets and transmit them to firing points.³⁷⁷

C3I Gear

The C3I gear under development looks promising. The systems include a portable radio to support receiving and transmitting speech and data up to five kilometers; a tactical terminal and a subscriber communicator for the automation of command and control, communications, and situational reporting; navigation using GPS and GLONASS systems; and capabilities to access monitoring and intelligence assets, including UAVs. All communication channels in the

³⁷⁴ Yuriy Gavrilov, “Navigation Device for the Soldier, Tabled for the Commander. Troops Being Equipped with New Control and Communications Package,” *Rossiyskaya Gazeta Online (Russian News Online)*, 23 December 2014.

³⁷⁵ *Interfax* (in English), 29 December 2014.

³⁷⁶ Yuriy Belousov, “With One Movement of the Stylus: Latest Reconnaissance-Fire System Being Successfully Introduced in the Central Military District Troops,” *Krasnaya Zvezda Online (Red Star Online)*, 20 January 2015.

³⁷⁷ Yuriy Borodin, “Such an Army Does Exist,” *Krasnaya Zvezda Online (Red Star Online)*, 10 February 2015.

system are encrypted. This equipment was NOT developed for the Ratnik system.³⁷⁸

Invisibility Cloak

One noteworthy piece of gear was the development of an “invisibility cloak,” which consists of a weightless fabric with special coating that is designed to reflect and distort light so that the soldier reportedly becomes invisible. This fabric reportedly can provide protection from weapons of mass destruction, and the cloak can be worn comfortably under Arctic conditions.³⁷⁹

Army 2015 International Military-Technical Forum

The scientific and business program for the Army 2015 International Military-Technical Forum listed 20 separate topics that included roundtable discussions. The breakdown of the forum’s elements included the following: one academy (General Staff), eight directorates (Main Operations, Troop Service and Safety, Military Topographic, Information and Telecommunications Technology, Intellectual Property, Scientific Research, Main Cadre, and Medical Service), six commands (Ground, Navy, Air Force, Aerospace, Strategic Missile, Airborne), one support staff (Logistics), and one department (Maintenance and Utilities). The General Staff Military Academy offered challenges and threats in the modern world, including discussions of military doctrine, color revolutions, global missile defense issues, and future armed forces composition. The Main Operations Directorate considered command and control and fire control as worthy of discussion (to include crisis situation monitoring, simulation of combat operations, and training equipment issues), along with Arctic security issues.³⁸⁰ Such lists show where the troubling issues for Russia’s military reside.

³⁷⁸ Unattributed article, “A UAV in the Soldier’s Combat Vest,” *Voyenno-Promyshlenny Kuryer Online (Military-Industrial Courier Online)*, 25 March 2015.

³⁷⁹ *Zvezda TV (STAR TV)*, 24 March 2015.

³⁸⁰ “Army 2015 International Military-Technical Forum,” *Ministry of Defense of the Russian Federation website*, 16 June 2015.

On the day before the opening of the Forum, it was reported that a microwave cannon had been created and that it would be demonstrated in the closed part of the exhibition. It reportedly was “capable of out-of-band suppression of electronic equipment of low-flying objects and the attack elements of precision weapons. The gun incapacitates aircraft and drone equipment and neutralizes high-precision weapons.”³⁸¹ The system, whose effective range exceeds ten kilometers, can be fitted to the Buk anti-aircraft missile system. In the past such electronic systems have been categorized as nonlethal weapons.³⁸² The advantage of this weapon is that it incapacitates and destroys electronics. It generates a very compact, narrow beam and has a large antenna with high energy radiation. The system’s weakness is that its effect can be reduced if some type of screening system is placed on enemy equipment.³⁸³

Press reports noted that air defense weapons shown at the Forum from the Almaz-Antey enterprise included full-scale Buk-M2E, Osa-AKM1, and Tunguska-M1 air defense systems as well as the Tayfun-M combat vehicle; and models and posters of the S-400 Triumph, Antey-2500, S-350E Vityaz, Buk-M2E, Tor-M2KM, Tor-M2E, and Tor-M2K air defense systems and Kalibr-PL and Kalibr-NKE missile systems. A radar, the Demonstrator, was shown.³⁸⁴

The improved Buk-M3 is now reportedly capable of reaching 70 km in range and has surpassed the Russian S-300 in a number of parameters. Its target kill probability is .9999, which is more than the S-300 could achieve.³⁸⁵ In addition, the Buk will be armed with a microwave cannon that can disable UAVs and high-precision weaponry. The cannon purportedly can provide a 360 degree defense over a radius of more than 10 kilometers, although this range is often contested.

³⁸¹ Olga Bozheva, “Microwave Cannon That Disables Enemy Equipment Created in Russia,” *Moscow MK Online (Moscow Komsomolets Online)*, 15 June 2015.

³⁸² *Ibid.*

³⁸³ Aleksandr Stepanov, “Shock Wave,” *Versiya (Version)*, 22 June 2015.

³⁸⁴ *Interfax-AVN Online*, 11 June 2015.

³⁸⁵ *TASS*, 20 May 2015.

Unlike electronic warfare systems, the microwave beam disables electronic and electrical equipment.³⁸⁶

The Forum highlighted the Glayder-T underwater robotic apparatus with EW functions, capable of orienteering under water without the help of GLONASS. It can identify passing ships by sound, solve EW tasks, imitate decoy targets, and hinder sonar work, as well as that of other hydro-acoustic devices of an adversary. It can work independently for up to 180 days. Finally, the robot can collect water samples, detect pollution levels, take underwater photos, avoid detection due to an innovative engine, and transmit information to computers using various types of communication means (radio, satellite, etc.).³⁸⁷

Other equipment shown at the Forum included the Verba portable surface-to-air missile launcher and missile, which purportedly has a new self-homing device and an unsurpassed kill zone. The Msta mortar, Pantsir-S1 air defense systems, the T-90 tank, Nebo mobile radar, and Su-35 and T-50 jets were also shown.³⁸⁸ Finally, the Strategic Missile Troops demonstrated their engineer support and camouflage vehicle, which is capable of engineer reconnaissance, assessments of load-bearing capacity of bridges and soil, route maneuverability, radiological and chemical reconnaissance, and widening of routes and emplacements.³⁸⁹

Electronic Warfare

The Soviet Union was well known for its radio-electronic warfare (EW) capabilities. Today the Russian military has continued to invest heavily in EW equipment. A real impetus for developing EW equipment came from the five-day war with Georgia. During that conflict it became clear that even air superiority was dependent on EW supremacy.

³⁸⁶ Anton Mardasov, "Buk Microwave Weapon Will Shield Russia," *Svobodnaya Pressa (Free Press)*, 15 June 2015.

³⁸⁷ *RIA Novosti (RIA News)*, 18 June 2015.

³⁸⁸ *Zvezda TV (Star TV)*, 21 June 2015.

³⁸⁹ *Ministry of Defense of the Russian Federation Website*, 17 June 2015.

Another impetus was President Putin's priority demand that at least 70 percent of the EW equipment must be modern by the year 2020. At the current rate, according to Deputy Defense Minister Yuriy Borisov, the figure could be closer to 80 or 90 percent.³⁹⁰

US and Western analysts have taken note. US Air Force General Franck Gorenc reportedly stated that these new capabilities are limiting access to certain territories. The EW invisible wall is a real obstacle, literally able to wrest a Western trump card from its hands and limiting attempts to project power.³⁹¹

Russian EW development has been continuous for the past decade. From 2010-2013, for example, the Borisoglebsk-2, Alurgit, Infauna, Krasukha-20, Krasukha-S4, Moskva-1, Parodist, Lorandit-M, Leep-2, Leep-3, Lesochek, Less, Magniy-REB, and Pole-21 system trials were conducted.³⁹² Several of these systems are described in more detail below.

One of the most interesting EW research developments is what has been called "radiophotonics," which is technology that reduces the radar signature of an aircraft and allows the plane to be made completely invisible. Its use could be widespread within five to seven years. Sixth-generation avionics include "smart [fuselage] skins," which are control systems that indicate the "aircraft monitors the pilot." The Radio-Electronic Technology Concern (KRET) is working on these issues as well as several others, to include an EW system that can conceal strategic missile launchers and an aerospace-based integrated

³⁹⁰ Unattributed report, "Defense Ministry: Proportion of Modern Electronic Warfare Systems in Troops Could Reach 90 Percent," *RIA Novosti (RIA News)*, 24 September 2015.

³⁹¹ Sergey Serov, "Other People's Weapons Will Not Reach. NATO Has Realized That it is Not Possible to Get into Russia's Skies," *Rossiyskaya Gazeta Online (Russian News Online)*, 30 October 2015.

³⁹² Unattributed report, "New Electronic Surveillance Tools of the Russian Army Have Made It Possible to Jam Enemy Sources Ten Times More Quickly Than Before," *Interfax-AVN Online*, 15 April 2014.

multifunctional EW system that will provide wide-band passive radar coverage and have “an intellectual-and-disinformation effect” on an enemy. No further details were provided.³⁹³ Russian TV showed a briefcase-type assembly that provides eavesdropping protection in the form of an “electronic blanket” for meetings in buildings or vehicles. A handheld receiver that can intercept, listen, or jam was also shown.³⁹⁴

In September the online version of the *Military-Industrial Courier* ran a two part series on myths and truths of EW. Part One discussed the uniqueness of Russian EW assets. Organizationally, it was noted that the 15th Separate EW Brigade of the Supreme High Command appeared in 2009, the only such brigade bearing that name. It has the still secret Murmansk-BN communication line suppression station (allegedly able to swamp over 20 frequencies in the 200-500 MHz area at ranges up to 5,000 kilometers) and the Leyer-3 aerodynamic blanket noise generating system. Now each military district has separate EW centers, and most of them have been reorganized into separate EW brigades. Each district has separate battalions as well. In addition to the Murmansk systems there are Infauna tactical systems and R-330Zh Zhitel and R-934 jamming stations. Separate companies there have the 1L269 Krasukha-2 (allegedly able to suppress AWACS at ranges of several hundred kilometers) and 1RL257 Krasukha-4 (allegedly able to suppress airborne radar stations on fighters, fighter-bombers, and the E-8 and U2 spy planes); and a company with Leyer-3 systems. It was note that the Krasukha-4 could even suppress air to air homing missiles and the radars controlling Patriot air defense missile systems.³⁹⁵

It was reported that the Khibiny system is installed on Su-34 frontline bombers and that the Mi-8 helicopters have the Rychag stations. The Russian Air Force has the Il-22 Porubshchik jammer as

³⁹³ *Interfax-AVN Online*, 3 February 2015.

³⁹⁴ Aleksandr Sladkov, “Military Program,” as shown on *Rossiya 1 (Russia 1) TV*, 29 August 2015.

³⁹⁵ Aleksey Ramm, “Electronic Warfare—Myths and Truths—Part 1: How Unique are the Russian Army’s EW Assets?” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 30 September 2015.

well. The Avtobaza system can allegedly take out drones through suppression, and there was an implied statement that it “clearly” was indirectly linked to the downing of the US unmanned aerial vehicle in Iran. The Moskva consists of a reconnaissance station to detect and classify types of radiation, their direction and signal strength, and the control point from where data is coming. The R-330Zh Zhitel is the best known satellite navigation jammer.³⁹⁶

The second online version of the *Military-Industrial Courier* covered more information on the Rychag-AV, Chibiny, and Il-22PP Porubshchik systems. The Rychag is designed to suppress weapon control radars and warheads of homing missiles from enemy air defense systems. Rychag reportedly can detect, receive, analyze, and suppress enemy radar signals, “regardless of the emission mode (pulsed, continuous, quasi-continuous)” and can simultaneously avoid suppressing its own radar stations. The system has been on the Mi-8MTPR-1 since 2010.³⁹⁷

The Khibiny, when fitted to a Su-34, continuously exchanges information with its avionics and issues situational information on a display on the navigator’s work station. The system was used in the 2008 war with Georgia. The EW station has a multi-channel antenna array that can mount noise interference and simulate radio countermeasures while conducting technical reconnaissance. The Porubshchik has a side-mounted antennae and towed in-flight station that unwinds, some say, several hundred meters behind the aircraft. It is not expected to be purchased by the Air Force until 2020. It is thought that the EW system may serve as a flying command post for EW assets.³⁹⁸

With regard to training, there now is an Interbranch Training Center for the Training and Combat Employment of the Armed Forces’

³⁹⁶ Ibid.

³⁹⁷ Aleksey Ramm, “Electronic Warfare—Myths and Truths—Part 2: How Did the Khibiny Overcome the Destroyer Donald Cook?” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 7 October 2015.

³⁹⁸ Ibid.

Electronic Warfare Units in Tambov.³⁹⁹ The training is directed at command staffs attempting to master the planning and organization of EW, combat employment of command and control items, reconnaissance, and electronic jamming equipment.⁴⁰⁰ Over the past three years many new types of radar surveillance, protection, and suppression systems have been delivered, including the Krashukha-4, Moskva-1, and Khibiny. Such systems are designed to neutralize precision weapon systems of an adversary by jamming frequencies or other onboard equipment. The modern EW battalion with this new technology can cover an area of one hundred by one hundred km. Inside this area an adversary would be unable to conduct radio and radar reconnaissance or deploy precision weapons with accuracy, according to one report.⁴⁰¹

In an interview with the Eastern Military Districts Chief of EW, Vladislav Kharchenko, it was noted that the Armed Forces had acquired the Zhitel and Lorandit automated jamming station and R-330 BMV, R378 BMV, and R-934 BMV jamming systems. The latter allow radio EW in the HF and VHF spectrums and the jamming of cellular communications, navigational communications, and enemy HF aviation radio communications. Contract servicemen in EW units are now at 55 percent of the force, and there is a goal to make all EW units staffed only with contractors.⁴⁰²

EW systems developed for the Armed Forces in the past several years used digital processing and signal generation, automated mast

³⁹⁹ Unattributed report, “New Generation Borisoglebsk-2 Special Complex to be Delivered to Central Military District’s Combined Heavy Motorized Rifle Unit’s Radiotechnical Troop Subunits,” *Ministry of Defense of the Russian Federation Online*, 8 July 2015.

⁴⁰⁰ Unattributed report, “The Arctic Formation’s Electronic Warfare Subunits Conduct Training at the Interbranch Electronic Warfare Troops Training and Combat Employment Center in Tambov,” *Ministry of Defense of the Russian Federation Online*, 21 April 2015.

⁴⁰¹ *Interfax-AVN Online*, 1 May 2015.

⁴⁰² Vladimir Pylayev, “As in the Past, on the Front Lines,” *Suvorovskiy Natisk (Suvorov’s Charge)* (Electronic Edition), 23 May 2015.

deployment and remote antenna alignment, modern automation and information and communication technologies, and solid-state components. Of particular significance of the EW systems entering service are the Krasukha-20 and Krasukha-S4, Murmansk-BN, Borisoglebsk-2, and the Svet-KU.⁴⁰³ More than 20 EW systems are described below.

Borisoglebsk-2: This is reportedly a multifunctional EW complex consisting of nine machines. Designed to jam mobile satellite communication and radio-navigational systems, the complex “has electronic reconnaissance and electronic jamming facilities with an expanded frequency band, an increased speed of scanning the frequency range, reduced reaction time with regard to unknown frequencies, higher accuracy in determining the coordinates of a source of radiation, and jamming facilities with a higher throughput capacity.”⁴⁰⁴ It is stated that the complex can suppress over twice the frequency range than its predecessors (such as the Mandat or R-330), and it can find a signal to jam in a hundredth of the time.⁴⁰⁵ The Eastern Military District, Arctic, and Southern Military District have tested the complex at Tambov, with the Arctic units attempting to take into account the specific conditions of the Polar Region. It is mounted on a mobile tracked MT-LBu armored personnel carrier.⁴⁰⁶ The Borisoglebsk-2 was produced by the Sozvezdiye Concern.

Krasukha-2: The Krasukha-2 system was developed at the Gradient Scientific Research Institute. It analyzes signal types and jams enemy radar stations. It does not use powerful radiation immediately, according to reports. Rather, it first probes a target with mild radiation, determines

⁴⁰³ Russian Defense Press Service and Information Directorate, “About 20 Designations of Modern Electronic Warfare will Be Purchased for the Armed Forces This Year,” *Ministry of Defense of the Russian Federation Online*, 16 March 2015.

⁴⁰⁴ “New Generation...”

⁴⁰⁵ *Zvezda (Star) TV*, 2 March 2015.

⁴⁰⁶ Unattributed report, “Southern Military District’s Motorized Riflemen Master New Electronic Warfare System,” *Ministry of Defense of the Russian Federation Online*, 11 February 2015.

its frequency bands, and then imperceptibly inserts itself into a long-range radar detection system such as an AWACS-type system. More importantly it “lulls the flying command posts and satellites with virtual tales about nonexistent targets and dangers.”⁴⁰⁷ The result is that the target attacks its own military facilities that appear as hostile to an AWACS.⁴⁰⁸

Krasukha-4: The Krasukha-4 is a broadband noise-interference station that protects ground facilities from radars onboard strike aviation aircraft. It can also jam radars of reconnaissance and reconnaissance-strike UAVs.⁴⁰⁹ The mobile jamming station is touted as being the latest high-tech development to come out of the military-industrial complex. The system makes it very hard for an adversary to hit Russian aviation. It was noted that “this kind of smart technology is like gold dust” and that no one knows where this top-secret system will be deployed.⁴¹⁰ They can establish radio interference in a wide range of frequencies without any limitation regarding the location of azimuth or angle. Manufactured by the Radioelektronnyye Tekhnologii Concern, part of Rostekh, each system is comprised of two KamAZ vehicles with an operating radius of more than 300 km. The new system is fully automated and takes into consideration changes in wavebands and how the frequencies of homing-guidance heads operate as well as the algorithms of its effect. The system detects the frequencies on which reconnaissance is being conducted and initiates suppression automatically. The old Soviet systems, on the other hand, often saturated a waveband with noise and unfortunately suppressed its own equipment in the process.⁴¹¹ The system has successfully countered the US Lacrosse-class radar reconnaissance

⁴⁰⁷ Sergey Ptichkin, “AWACS Deceived by Whisper; Electronic Warfare Goes into Space,” *Rossiyskaya Gazeta Online (Russian News Online)*, 21 November 2014.

⁴⁰⁸ Ibid.

⁴⁰⁹ Oleg Vladykin, “Battle against AWACS Practiced on Range. Russian Troops Receive Systems for Jamming the Opponent’s Reconnaissance and Weapons Guidance Systems,” *Nezavisimaya Gazeta Online (Independent News Online)*, 13 March 2015.

⁴¹⁰ *Rossiya 24 TV (Russia 24 TV)*, 31 March 2015.

⁴¹¹ Denis Telmanov, “The ‘Krasukha’ Has Been Sent to the Far East,” *Gazeta.ru (News.ru)*, 30 January 2015.

satellites.⁴¹² Lacrosse-class radar surveillance satellites are designed to monitor launch sites of the Topol or Yars mobile ground-based systems.⁴¹³ The system creates a dome that is impenetrable to electromagnetic waves. It can blind and deafen AWACS-type long-range radar surveillance planes, space satellites used to guide rockets to targets, and in tough situations, can control a high-frequency beam to “burn out all of an airplane’s electronic systems, rockets, or low-orbiting satellite.” Finally, it can create the appearance of targets that are not identifiable. Adversary systems will not be able to ascertain if the target before them is friend or foe.⁴¹⁴ On 17 August a report from the Western Military District stated that the Krasukha (the article did not state which version) had blinded a simulated enemy’s frontline aircraft (in this case Su-34 bombers). The system disorganized the control system and as a result the bomber could not detect targets and aim weapons at them.⁴¹⁵ The system also can be found in the Eastern and Southern Military Districts and in the Arctic.

Krasukha-20: The Krasukha-20, also profiled in a March 2015 report, is said to be “truly the pride of the Russian defense industry.” It can be serviced by a single person, the driver who is also the operator. When he presses a button the system unfolds, lowers its supports, connects with a satellite, determines its location, connects to a command post, and operates in several minutes. Its range is 400 km with a power of 1GW. The system can “switch off” radar reconnaissance devices on even an AWACS.⁴¹⁶

Moskva-1: This is a reconnaissance and control system monitoring the electronic situation in real time on all frequency ranges used by military

⁴¹² *Interfax-AVN Online*, 1 May 2015.

⁴¹³ Unattributed report, “In Russia Radio Electronic Warfare Assets Have Been Developed that Can ‘Hide’ Topol Launch Positions from Space Surveillance,” *Interfax-AVN Online*, 1 May 2015.

⁴¹⁴ Yuriy Gavrilov, “Electronic Warfare Subunits Have Conducted Training in North Ossetia,” *Rossiyskaya Gazeta Online (Russian News Online)*, 26 June 2015.

⁴¹⁵ *Interfax* (in English), 17 August 2015.

⁴¹⁶ Vladykin.

and civilian equipment. It is accomplished by the so-called digital radio frequency memory, analog-digital converter, and digital-analog converter methods.⁴¹⁷ The Radio Elektronnyye Tekhnologii Concern will be supplying ten complexes of the Moskva-1 to the Armed Forces. It is described as a nerve center for air defenses and other electronic countermeasure systems. It is designed to carry out electronic intelligence-gathering and conduct jamming and electronic suppression. It can scan airspace and locate and identify electronic countermeasure sources with a range of 400 km.⁴¹⁸ The system can operate in passive radar mode and thus remain invisible to an adversary.⁴¹⁹ It can simultaneously set missions (targeting and deploying) for nine guided EW and PVO systems, can cover 360 degrees, and displays the air situation on several monitors, where each is given different visualization modes.⁴²⁰ It will act as a “brain” for the entire EW defense system of entire regions, revealing “enemy plans and hindering the effective functioning of its combat units.”⁴²¹

Infauna: Used by the Black Sea Fleet, this system is composed of multipurpose radio reconnaissance and electronic suppression systems. It is designed to protect personnel and military equipment from controlled mines and explosives. The system can apply aerosol screens that shelter troops from precision weapons using lasers and optical targeting.⁴²² The system is present in the Southern Military District’s combined formations and units in Armenia. They are located on BTR 80s.⁴²³

⁴¹⁷ Vladimir Mikheyev, “Innovations in the Electronic Warfare Sphere,” *Ekho Moskvy Online (Moscow Echo Online)*, 15 June 2015.

⁴¹⁸ *Interfax-AVN Online*, 20 November 2014.

⁴¹⁹ Ptichkin.

⁴²⁰ Unattributed report, “Southern Military District Electronic Warfare Subunits Will Receive nearly 20 Units of Modern Electronic Warfare Systems before the End of the Year,” *Ministry of Defense of the Russian Federation Online*, 14 October 2015.

⁴²¹ Unattributed report, “Russian Armed Forces Moskva-1 Systems Can ‘Target’ Up to Nine Electronic Warfare Systems,” *RIA Novosti (RIA News)*, 25 December 2015.

⁴²² Zavolokin.

⁴²³ *Armenpress* (in English), 27 May 2015.

Lesochek: this small-sized interference transmitter or EW system is designed to suppress radio channels of explosive devices and protect military vehicles and armored vehicles from landmine explosions.⁴²⁴ It can be carried in a backpack or briefcase, which can prevent eavesdropping as well. Reportedly this system, had it been operating in 1995, it would have prevented the head of the Internal Troops in Russia, General Romanov, from being a victim of an explosion.⁴²⁵

Murmansk-BN: This electronic system suppresses shortwave communication lines based on new-generation KamAZ vehicles.⁴²⁶ The system is designed to create interference on shortwave radio communication lines in the operational-strategic, operational, and operational-tactical links of enemy command and control systems.⁴²⁷ It has been referred to as an automated system of electronic radio communication suppression.⁴²⁸

Rtut-BM: The reconnaissance troops use this system. It is mounted on a multi-purpose lightly armored universal carrier chassis. It can detect enemy missiles in flight, determine their type of radio controlled detonator, and apply powerful interference on the desired frequency and thereby disable the detonator. It can protect troops in an area up to 50 hectares from massive bombardment.⁴²⁹ It is used by the Black Sea Fleet.

⁴²⁴ Central Military District press office, "Heads of Sverdlovsk Oblast Municipalities Will Analyze the Results of the 'Vostok-2014' Command and Staff Strategic Exercise," *Ministry of Defense of the Russian Federation*, 3 December 2014.

⁴²⁵ Anton Valagin, "What Frightened the American Destroyer," *Rossiyskaya Gazeta Online (Russian News Online)*, 30 April 2014.

⁴²⁶ Yuriy Belousov, "Before the Brigade's New Banner," *Krasnaya Zvezda Online (Red Star Online)*, 11 September 2014.

⁴²⁷ Ruslan Voronov, "They Battle in the Ether," *Suvorovskiy Natisk (Suvorov's Charge)*, 27 September 2014.

⁴²⁸ Ptichkin.

⁴²⁹ Pavel Zavolokin, "Infauna and Rtut for Naval Intelligence," *Krasnaya Zvezda Online (Red Star Online)*, 3 October 2014.

Vitebsk: MiG 31s⁴³⁰ and Su-25SM3s are equipped with the Vitebsk EW system, the latter with the Vitebsk-25.⁴³¹ It can also be found on the Ka-52 helicopter⁴³² and the Mi-26 heavy transport helicopter, as well as the Su-25 assault aircraft. New EW systems using new physical principles of operations [not stated in the article] will have improved technical characteristics comparable to the Vitebsk system. The Vitebsk system protects planes and helicopters from infrared homing missiles.⁴³³

Avtobaza: This is a radar reconnaissance system and automated command-and-control vehicle. The vehicle detects radar emissions from aircraft and the radar guidance systems of missiles. The EW system then analyses the type of signal and sends the same signal (but amplified several times over) back to the target. The aircraft's radar loses the ability to see, and any missiles or UAVs go out of control and crash.⁴³⁴

R-330Zh: This system is an ultra-shortwave radio communications and radio navigation jamming station and is located in the Southern Military District of troops. It can block signals from some satellites, and as part of the overall complex it can oppose the GPS control facilities of UAVs.⁴³⁵

Khibina-U: This is a modification of the Khibina (Khibiny), which is a multipurpose system that creates a protective electronic cloud around an airplane where even guided rockets lose track of the target. It has been

⁴³⁰ Unattributed report, "MiG-31s Will Learn to Orient Themselves in the Arctic without Satellites," *Rossiyskaya Gazeta Online (Russian News Online)*, 23 June 2015.

⁴³¹ Timur Alimov, "SU-25SM3 Ground-Attack Aircraft Will Undergo Graded Tests," *Rossiyskaya Gazeta Online (Russian News Online)*, 17 February 2015.

⁴³² Yekaterina Zgirovskaya, "KRET: We Are Creating Equipment for an Advanced Spaceship," *RIA Novosti (RIA News)*, 28 April 2015.

⁴³³ No author listed, "Electronic Warfare System on New Principles, Capable of Repelling Almost All Air Defense Systems, is Being Developed in the Russian Federation," *TASS*, 11 August 2015.

⁴³⁴ Aleksandr Sofronov, "Russian Weapons Show," *Rossiya 24 (Russia 24) TV*, 31 March 2015.

⁴³⁵ Igor Melnikov, "15 April—Electronic Warfare Specialist Day: Weapons of Asymmetrical Response," *Voyenny Vestnik Yuga Rossii (Military Bulletin of the South of Russia)*, 11 April 2015.

deployed on the Su-30SM multirole fighter.⁴³⁶ It purportedly has the power to blind an adversary's instruments. The Russian press indicated that the Khibiny system was applied against the USS Donald Cook in April 2014 when mounted on a Su-24.⁴³⁷

Lorandit-M: This is a compact radio-control and jamming system that underwent state trials in 2014.⁴³⁸

Gimalai Complex: this is reportedly a system composed of active and passive radar and optical stations that are integrated into an aircraft's body and function as a "smart skin." It is being developed for the T-50 fifth generation aircraft.⁴³⁹

President-S: This complex reportedly can detect a missile, determine the degree of the threat, and activate the required passive and active electronic jamming, after which a missile from the plane "sees" only decoy targets and misses.⁴⁴⁰

Leyer-2: This system was referred to as an "aerodynamically launched jamming system."⁴⁴¹ In another report it was described as a mobile automated complex for technical surveillance, electronic spoofing, and jamming of electronic equipment. It can reconnoiter sources of radio-frequency emissions and jam enemy electronic equipment.⁴⁴²

Leyer-3: the Leyer-3 EW system uses the Orlan-10 UAV as a jamming platform, making it possible to perform from distances of over 100 km

⁴³⁶ Gavrilov, "Electronic Warfare Subunits..."

⁴³⁷ Vladykin.

⁴³⁸ Russian Defense Press Service...

⁴³⁹ Olga Bozhyeva, "Sixth Generation Warfare: How We Will Deafen Foreign Radars, Satellites, and Computers: Unique Developments: Moskva-1, Gimalai, and President-S," *MK Online (Moscow Komsomolets Online)*, 2 January 2015.

⁴⁴⁰ Ibid.

⁴⁴¹ Ptichkin.

⁴⁴² Southern Military District Press Service, "Newest Electronic Warfare Complexes Are Being Received by Southern Military District Troops," *Ministry of Defense of the Russian Federation*, 6 October 2014.

from a deployment position. It can counteract radio electronic and computer systems as well as other assets for up to 9 hours.⁴⁴³

Svet: This is a mobile command and control technical system, capable of attaining electronic emissions, creating interference, and suppressing enemy communication systems, as well as making their own troops “invisible” to the enemy’s radio-technical intelligence assets.⁴⁴⁴

Armor

It would be an oversight not to mention the recent advancements in Russian armor technology, such as Armata, Kurganets, and Koalitsiya SV self-propelled systems, and the Boomerang amphibious armored personnel carrier. Each has been highlighted in the open press, with a huge focus on the new Armata tank.

The new T-14 Armata, with its turret uncovered, was seen for the first time during the rehearsal for the victory parade marking the 70th anniversary of the end of World War II. The tank is said to have an internal armored capsule housing its three-man crew and an automatic weapons loading system. This platform is designated to be used as a platform for other vehicles. The military is set to receive 2,300 Armatas by 2020. The tank will not be sold abroad for another five years.⁴⁴⁵ It was designed as a medium tank capable of maneuvering against any enemy under conditions of the employment of nuclear or other types of weapons of mass destruction.

⁴⁴³ Unattributed report, “Western Military District Electronic Warfare Specialists Master Leyer-3 Modern Electronic Warfare System,” *Ministry of Defense of the Russian Federation Online*, 14 October 2015.

⁴⁴⁴ Unattributed report, “The Personnel of the Central MD Electronic Warfare Brigade Has Been Presented with New-Specimen Colors,” *Nakanune.ru (The Day Before.ru)*, 8 September 2014.

⁴⁴⁵ Alexander Zemlianichenko, no title provided, in the *STARS and STRIPES*, the *Associated Press*, 4 May 2015, at <http://www.stripes.com/jnews/europe/russia-a-new-armata-tank-makes-debut-in-parade-rehearsal-1.344176>.

Russian Vice Prime Minister Dmitriy Rogozin noted that the tank eventually will have a 152-mm gun, making it the largest in the world, and a projectile which will burn through a meter of steel. Russian tank specialist Viktor Murakhovskiy stated that the new caliber main gun will be designated as the 2A83. The tank can acquire targets at 5,000 meters and engage them at 7,000-8,000 meters, firing on the move if needed. It has an aiming and fire control system, battle management and navigation system, thermal imager, and anti-mine protection. The tank's effective rate of fire is 10-12 rounds/minute. It can carry 45 rounds.⁴⁴⁶

“The Armata's armor is invulnerable to all modern and future tank munitions which are to date 120-mm caliber and to 100-150-mm anti-tank guided missiles and shoulder-fired grenade launchers,” according to an agency source of the Steel Research Institute.⁴⁴⁷ The tank also has active protection, that is, active phased-array radar that tracks all threats, and a special on-board computer that calculates intercept points for tank-bound missiles. The tank can also be used in the Arctic.

In June it was reported that the Armata will be able to reduce its crew from three to two members. Further, the turret is uninhabited due to the armored capsule that separates the crew from the ammunition compartment. The silhouette has special coating to reduce the Armata's visibility in thermal and radar ranges.⁴⁴⁸ Retired Colonel-General Sergey Mayev, who previously led the Armed Forces Armor Directorate and is perhaps the most highly respected armor procurement officer of his generation, noted that the T-14 opens the path to creating robotic complexes in the future, since the vehicles entire control system is electronic. The weight to horsepower (1,500 HP) differential is much higher than for other vehicles worldwide, which makes the tank highly maneuverable. The Armata, Mayev noted, is the base chassis for an

⁴⁴⁶ Viktor Baranets, interview with Viktor Murakhovskiy, “Military Expert: ‘Armata’s Superprojectile Penetrates a Meter of Armor’,” *Komsomolskaya Pravda Online (Komsomol Truth Online)*, 14 May 2015.

⁴⁴⁷ Anton Valagin, “The Armata’s Armor is Deemed Invulnerable,” *Rossiyskaya Gazeta Online (Russian News Online)*, 8 June 2015.

⁴⁴⁸ *Interfax* (in English), 18 June 2015.

entire class of armored vehicles.⁴⁴⁹ Serial production is not expected for two or three years.

Other vehicles were shown at the 70th anniversary parade. The Kurganets-25 armored infantry vehicle was offered as both an infantry fighting vehicle and an armored personnel carrier. The fighting vehicle variant had a 30 mm cannon, two Kornet antitank guided missiles, and a 7.62 machine-gun. The Boomerang fighting vehicle, intended to replace the BTR family of vehicles, has the same turret as the Kurganets-25 and the same armament package. The Koalitsiya-SV will replace the 2S19 MSTA-S SPG for the ground forces. It will have a 152 mm gun, a 12.7 machine gun, and Tucha smoke grenade launchers.⁴⁵⁰ Another report noted that the Koalitsiya has a capsule for its crew of three, like the Armata. The same report noted that Russia has developed a 50 mm automatic cannon to replace most 30 mm cannons, due to the increased strength of steel in tanks. It can be placed on infantry fighting vehicles and personnel carriers.⁴⁵¹

Other New Equipment (Vehicles, etc.)

Rakushka BTR-MDM: this vehicle will replace the BTR-D, which has been part of the inventory since 1974. The new vehicle is more comfortable, with heated seats, air conditioning, heat, and special mats, as well as a semiautomatic transmission, a GLONASS navigation system, and a steering wheel. It is twice as large as the BTR-D and can transport 13 soldiers and two tons of cargo. In contrast to the 8-passenger BTR-D, a Rakushka driver can fire on the move without getting out of his seat. Finally the Rakushka can travel at 70 kilometers per hour on paved roads and ten kilometers per hour while afloat. It has a 500-horsepower engine (versus the BTR-D's 240-horsepower engine) and is

⁴⁴⁹ Interview with Sergey Mayev, "Analysis: Armata T-14 Tank Opens the Way for the Creation of Robotic Complexes," *Nakanune.ru (The Day Before.ru)*, 8 May 2015.

⁴⁵⁰ Nicholas de Larrinaga and Nikolai Novichkov, "Analysis: Russia's Armor Revolution," *Jane's Defense Weekly*, 20 May 2015, pp. 5, 24-25.

⁴⁵¹ Aleksandr Kurennoy and Aleksey Naryshkin, "Innovations in Russian Armored Vehicles," *Ekho Moskvy Online (Moscow Echo Online)*, 22 June 2015.

equipped with the Tucha System for laying smokescreens.⁴⁵² Another source stated that the Rakushka configurations are being tested as personnel carriers and medical evacuation and air defense systems.⁴⁵³

BMD-4M Airborne Fighting Vehicle: this tracked army fighting vehicle is armed with the Bakhcha-U combat module and has both 100- and 30-mm cannons, along with a 7.62-mm machine-gun.⁴⁵⁴ It also has the Arkan antitank guided missile.⁴⁵⁵

DP-64 Anti-Saboteur Grenade Launcher: this weapon is designed to deliver fire at underwater targets from ships, to include defending against attacks from frogmen when ships are anchored. The launcher can also serve as a protective mode for offshore platforms. It can destroy all forms of light surface targets and kill frogmen up to 500 meters away.⁴⁵⁶

2S25 Sprut-SD Self-Propelled Antitank Gun: the gun's fire control system will be better than the T-90 tank's. It is equipped with the 2A75 125 mm gun.⁴⁵⁷

Flying BMD: airborne Commander Vladimir Shamanov announced that a four-platoon science company is being assembled on the site of the Ryazan Airborne School to build a "flying BMD" in conjunction with the Bauman Moscow Higher Technical School.⁴⁵⁸ Checks were made to see if this announcement was made on April Fool's day...

⁴⁵² Yelena Shulepova, "The Tula Airborne Troops Tested the New BTR," *Rossiyskaya Gazeta Online (Russian News Online)*, 14 December 2014.

⁴⁵³ *Rossiya 1 (Russia 1) TV*, 11 April 2015.

⁴⁵⁴ Viktoriya Chernysheva, "The Airborne Troops Will Receive 250 New Combat Vehicles," *Rossiyskaya Gazeta Online (Russian News Online)*, 13 May 2015.

⁴⁵⁵ *Ministry of Defense of the Russian Federation*, 11 March 2015.

⁴⁵⁶ Ivan Petrov, "Antisaboteur Grenade Launchers to Go into Serial Production," *Rossiyskaya Gazeta Online (Russian News Online)*, 24 February 2015.

⁴⁵⁷ Timur Alimov, "The 'Sprut-SD Self-propelled Antitank Gun Should Appear by the End of the Year,'" *Rossiyskaya Gazeta Online (Russian News Online)*, 15 May 2015.

⁴⁵⁸ Anatoliy Petrov, "New VDV Armament to be Displayed at Victory Parade in Moscow," *ITAR-TASS*, 22 March 2015.

Andromeda-D Jamming-Proof Communications System: the airborne troops have taken delivery of this new system. It enables videoconferencing with any command and control center. Communication channels cannot be blocked. If one channel is jammed, communication takes place through an alternate channel. The system has several mobile points. Telescopic antennas are nearly ten meters high. The system still requires cables.⁴⁵⁹ It allows multiuser access to situational information, and plots the information on an electronic topographic map,⁴⁶⁰ and it works when stationary and in motion, allowing increased speed of delivery to commands and thus helps with decision-making. VDV commander Vladimir Shamanov noted that the “automated control system constitutes the most possible complete set of means for transmitting data and commands in field conditions,” to include satellite, telephone, videophone, and video conferencing services. The system also provides security against the EW systems of potential enemies.⁴⁶¹ Another source called the Andromeda-D “a network of electronic hardware,” connected via a radio channel, navigation equipment, a fixed command post, and a person’s tablet computer.⁴⁶²

Polet-K: this is a unified control system that has increased the command and control cycle by 30-40 per cent. It was later integrated into the Andromeda system.⁴⁶³

⁴⁵⁹ Ivan Petrov, “No Blocking or Jamming: Paratroopers’ Communications Move to a New Level,” *Vechernyaya Moskva Online (Moscow Evening News Online)*, 6 May 2015.

⁴⁶⁰ Viktor Khudoleyev, “Toward New Standards of Mobility,” *Krasnaya Zvezda Online (Red Star Online)*, 30 June 2015.

⁴⁶¹ Unattributed report, “Russian Airborne Troops Equipped with Latest Control System Developed by Defense Industry Complex,” *Unified Instrument Manufacturing Corporation*, 22 September 2015.

⁴⁶² Aleksey Krivoruchek, “They Will Equip the VDV with a Command and Control System for R9.5 Billion,” *Izvestiya Online (News Online)*, 24 October 2013.

⁴⁶³ Anatoliy Yermolin and Aleksey Durnovo Interview with Aleksey Gamburg, 38th Airborne Troops Separate Communications Regiment, and Valery Salamov, Ryazan Airborne Command School, “Technical Reequipping of Airborne Troops

Nebo-M Air Defense Radar: this system was shown at the Armiya-2015 forum for the first time. It is comprised of three machines, is mobile, and can detect stealth technology. It reportedly can simultaneously track 200 objects to include 20 ballistic targets; and it can decide from which country an intruder comes. Four crew members are in the command post and four others operate the radar control vehicle, with the latter being the electronic brain of the system.⁴⁶⁴

Arbalet-2 Parachute System: the system allows for descending and maneuvering so that airborne soldiers can land precisely on transport means or on drifting ice flows up to 20 kilometers away from a launch site.⁴⁶⁵

Navigation-Geodetic Systems: the Armed Forces will receive more than 30 mobile navigation-geodetic systems, which will be accommodated on the back of KAMAZ trucks. The system helps determine coordinates and heights of terrain points and the coordination of the launching and firing positions of missile troops and the artillery, Strategic Missile Troops, and Aerospace Defense Troops.⁴⁶⁶

Zaslon Radar: in August it was noted that the Zaslon-AM radar for the MiG-31BM has almost double the range as the older Zaslon model. Other work underway includes the Bars and Ibirs radio-electronic systems for the PAK FA (Sukhoi T-50).⁴⁶⁷

Fundament-M: the Fundament-M automated control resource system can automate the collecting and processing of information from different

Communications Subunits...,” *Ekho Moskvyy Online (Echo Moscow Online)*, 17 October 2015.

⁴⁶⁴ *Ren TV*, 16 December 2015.

⁴⁶⁵ Yuriy Gavrilov, “In Ryazan Paratroopers Have Been Taught To Land on Moving Equipment,” *Rossiyskaya Gazeta Online (Russian News Online)*, 5 June 2015.

⁴⁶⁶ *Interfax-AVN Online*, 25 February 2014.

⁴⁶⁷ *Interfax-AVN Online*, 12 August 2015.

radar tracking stations. This facilitates the control of sources of information regarding the air situation.⁴⁶⁸

Aistyonok 1L271: this is a portable surveillance and artillery control radar system. It can track a projectile in flight and locate the impact point. It can locate an enemy weapon within a range of 15 km and detect moving vehicles up to 20 km away. The system weighs 135 kilograms.⁴⁶⁹

Communication Systems: Several new sets of communication equipment were on display at the Tsentr-2015 strategic exercise. These included the ZVKS-M secure video conferencing sets, the Azart-P1 sixth-generation digital radio station, the latest R-419L1 radio-relay station, the R-438 Baryer-T satellite communication station, and the latest Redut-2US digital system.⁴⁷⁰ The latter system consists of four types of communication stations, enabling it to employ a digital field network together with a stationary network. All modern forms of communication links are available (video conferencing, e-mail, security phone). Redut offers multiservice networks with channel-and packet-switching capabilities for data exchange and management of field communication nodes.⁴⁷¹ The system offers communications security and information protection at temperatures from minus 50 degrees Centigrade to plus 55 degrees Centigrade.⁴⁷²

⁴⁶⁸ Unattributed report, "Eastern MD Radiotechnical Troops Receive Fundament-M System," *Ministry of Defense of the Russian Federation Website*, 4 August 2015.

⁴⁶⁹ *Interfax* (in English), 17 August 2015.

⁴⁷⁰ Unattributed report, "Central Military District Successfully Use New Communications Equipment during Tsentr-2015 Strategic Command-Staff Exercise," *Ministry of Defense of the Russian Federation Website*, 23 September 2015.

⁴⁷¹ Southern Military District press service, "Southern Military District Communications Troops Currently 60 Percent Reequipped with Modern Hardware," *Ministry of Defense of the Russian Federation*, 13 October 2014.

⁴⁷² Unattributed report, "Wide Use Made of State of the Art 'Redut' Mobile Communications System...," *Ministry of Defense of the Russian Federation Website*, 28 September 2015.

Conclusions

From the discussion it is apparent that Russia's arms factories are back in business and operating at full potential. President Putin has supported the arms factories with money and his personal influence. Vice Prime Minister Rogozin has spearheaded the drive, pushing for reform and modernization. This has resulted in a well-rounded arms program, as small arms, strategic missiles, armored vehicles, command and control equipment, and individual soldier gear have all shown improvement, with some developments (such as the microwave cannon) of special interest. Russian theorists have stated that the Armed Forces learned several lessons about equipment shortcomings while fighting in Georgia, and the recent fighting in Ukraine has most likely provided more food for thought. These lessons learned are resulting in suggestions and improvements to weaponry and equipment for potential use in future wars.

The focus on developing UAVs and counters to them is well underway in Russia. The military will now have the capability to conduct extensive reconnaissance of the terrain on which they intend to conduct operations. This will enable the country to fight better in the North Caucasus and on its borders. Russia's counter-UAV systems are also undergoing renovation. This is particularly clear from the number of new radars the military is developing. Drones are clearly an area of extreme importance in future war scenarios, and Russia appears well on the path to developing an extensive array of these vehicles that can be employed by a variety of service elements. The same focus is apparent regarding the development of electronic warfare equipment.

This developmental work on equipment has been all-encompassing. Each service element has improved its posture, whether as a result of more training, infrastructure developments, or geopolitical interests (such as ground troop deployments to the Arctic). With Putin and Defense Minister Sergey Shoygu backing every step along the way, Russia is vastly improving the content and modernity of its military arsenal, which should enable it to stand firm in the wake of any future challenge presented to its leaders.

CHAPTER FIVE: AEROSPACE AND STRATEGIC ROCKET FORCES

Introduction

In December 2014 there were several reports indicating that Russia would soon have a new service, the Aerospace Forces (VKS). This development had been under consideration for many months. In June 2015 Lieutenant General Alexander Golovko told *Interfax-AVN* that the Aerospace Forces had been established, and “an appropriate resolution has already been issued.”⁴⁷³ Golovko noted that the merger, which is to mirror the US and Canada’s North American Aerospace Defense Command (NORAD), is to be completed in 2015. The force would be tasked with “building up a reliable missile attack warning system, both in space and on the ground, where a network of radar systems is to be deployed.”⁴⁷⁴ However, some sources discounted Golovko’s statement.⁴⁷⁵

On 3 August 2015 the suspense ended. Defense Minister Sergey Shoygu stated that, in compliance with a presidential decree, a new branch of Russia’s Armed Forces, the Aerospace Forces, began duty on 1 August. He added that “Their creation was prompted by a shift of the ‘center of gravity’ in combat struggle to the aerospace sphere. Aviation, the air defense and missile defense forces, and the space forces and means of the Armed Forces have now been merged under a unified command.”⁴⁷⁶ The Strategic Rocket Forces remain separate. Another source said that the new system can be viewed as a Russian response to the US’s Prompt Global Strike concept.⁴⁷⁷ President Vladimir Putin

⁴⁷³ *Interfax* (in English), 16 June 2015.

⁴⁷⁴ *Interfax*, 16 June 2015.

⁴⁷⁵ See, for example, Vladimir Mukhin, “Radar Stations and Fighter Jets Will Cover the Arctic by 2016: Idea of Creating in Russia Full-Fledged Aerospace Forces Has Not Found Understanding among Everybody,” *Nezavisimaya Gazeta Online (Independent News Online)*, 22 June 2015.

⁴⁷⁶ *Interfax* (in English), 3 August 2015.

⁴⁷⁷ *Ibid.*

designated Colonel General Viktor Bondarev, former Commander-in-Chief of the Air Force, as the Commander of the Aerospace Forces; Lieutenant General Pavel Kurachenko, former Deputy Commander of the Aerospace Defense Forces (VKO), as the Chief of Staff and First Deputy Commander responsible for air and missile defense issues; and Lieutenant General Alexander Golovko, former Commander of the VKO, as the Deputy Commander of the VKS and Commander of the Space Forces.⁴⁷⁸

The Air Force and those forces currently belonging to the VKO have now been integrated into one service. The Air Force will cease to exist as a separate service; only the Ground Forces, Navy, Strategic Rocket Forces, and VKS will remain. One source noted that the VKS will include an aerospace attack reconnaissance and warning system, an aerospace attack deterrence system, a unified control system, and a comprehensive support system.⁴⁷⁹

The VKO did well in 2014, as it received ten state-of-the-art radars that can help detect cruise missiles. In particular, the Poldet-K, Nebo-M, and the 96L6 radars were mentioned.⁴⁸⁰ These radars ensure that the VKO is fully modernized and able to accept missions as planned. According to an interview with Major-General Anatoliy Nikolayevich Nestechuk, the Deputy Commander of the VKO Space Command, the VKO troops celebrated their branch's holiday for the last time as a separate unit on 1 December 2014.⁴⁸¹ The VKO was established on that day in 2011 under the edict of then-President Dmitry Medvedev. Space Command Troops, part of the VKO, also celebrate this day.

⁴⁷⁸ *Interfax* (in English), 3 August 2015.

⁴⁷⁹ *Interfax* (in English), 10 December 2014.

⁴⁸⁰ "Military Space Troops Receive 10 State-of-the-Art Radars," *Abakan AIS*, 8 February 2015.

⁴⁸¹ Aleksey Durnovo, Interview with Anatoliy Nikolayevich Nestechuk, "Aerospace Defense Troops Space Command's Primary Mission is to Ensure Russia's Security in Space," *Ekho Mosky Online (Echo Moscow Online)*, 29 November 2014.

This chapter initially provides a short look at the VKO's theory, tasks, and missions. It then examines Russia's perception of the aerospace threats against it and the rationale behind the creation of the VKS. Space troops, hypersonic missiles, offensive and defensive missiles and radars, and aerospace deployments in the Arctic and Crimea are discussed. Upgrades to the Strategic Rocket Forces are highlighted as well, even though they are not part of the Aerospace Force. The chapter ends with the latest discussion of what it all means for Russia's strategic deterrence and stability concepts. Where mention is made of the VKO in regard to space troops, missiles, or deployments, it is with the understanding that this refers to its VKS component.

Theory, Tasks, and Missions of the VKO

VKO theory refers to “the field of military science studying problems of the creation of systems of armament and the employment of forces and assets” that execute national VKO missions.⁴⁸² VKO is a system of political, economic, military, military-technical, legal, and other measures for preparing and conducting military operations in aerospace. These measures must take into account the geopolitical and geostrategic situation, as well as the military threats that exist now and in the future.⁴⁸³ Threats that must be countered include the following:

- ICBM upgrades that increase their capabilities to penetrate missile attack warning and missile defense systems; equipping of reentry vehicles with nonnuclear weapons of mass destruction
- Cruise missile developments that enhance their long-range capabilities
- Hypersonic aircraft developments for various purposes

⁴⁸² Valentin Nikolayevich Dybov and Yuriy Dmitriyevich Podgornykh, “On the Question of Aerospace Defense Theory—Part 1: Main Military Threats to our Country's Security Continue to Stem from Aerospace,” *Vozdushino-Kosmicheskaya Oborona Online (Air-Space Defense Online)*, 11 December 2014.

⁴⁸³ *Ibid.*

- Space system and orbital platform strike developments against space, airborne, and ground targets
- UAV upgrades, to include strike UAVs
- Ballistic and nonstrategic ballistic missile upgrades
- US missile defense upgrades and their deployment near Russia's borders
- Weapon developments based on new physical principles⁴⁸⁴

Some believe the development of a VKO system that can parry these threats is as important to Russia now as was the development of nuclear weapons in the 1940s. The VKO system must be strategic, operational, tactical, lengthy, active, deliberate, and mobile, and have anti-aircraft, anti-missile, and anti-space capabilities due to a potential enemy's offensive aerospace weaponry.⁴⁸⁵

The overall task of the VKO is to maintain the status of Russia's orbital spacecraft grouping, which provides for Russia's military and national security; and to uncover in a timely fashion any threat from other nations building antisatellite means or space forces. As of November 2014, Russia had 130 spacecraft with nearly 70 percent capable of performing military security missions. Some 30 spacecraft utilize the GLONASS system, with 24 primary spacecraft and six in reserve. Soon (at least by 2020) the GLONASS-K system will replace GLONASS.⁴⁸⁶

In April 2015 the *Military-Industrial Courier* published an article that explained what steps needed to be taken to solve problems associated with forming the new Aerospace Forces:

⁴⁸⁴ Ibid.

⁴⁸⁵ Ibid.

⁴⁸⁶ Durnovo and Nestechuk.

- Simultaneously with the VKO's creation, create the Strategic Aerospace Command for the command and control of troops being employed regardless of their branch affiliation; or allow the VKO Main Command to have the same functions
- Restore the territorial principle of organization, where anti-space potential will only be handled at the strategic level
- Create a common command and control of aviation and all VKO forces based on a global information system
- Return fighter aviation units to air defense divisions
- Draft a new statute on VKO coordination in the Armed Forces
- Create a system of information support and destruction through integrating air defense and missile-space defense
- Introduce specialties and develop methods of multipurpose aviation operations.⁴⁸⁷

The Aerospace Theater of Military Operations

Russian specialists recognize that near-Earth space (40-100 km) is now able to be populated with hypersonic aircraft and aerospace aircraft. This will require the creation of an aerospace theater of military operations (VKTVD). The TVD concept, as it evolved in Russia, had a military-strategic expanse in mind, not just a geographic one,⁴⁸⁸ so an expansion of the concept into the aerospace realm is not unexpected.

⁴⁸⁷ Vladimir Barvinenko, "Old Problems of a New Branch of the Armed Forces: Additional Measures Are Needed to Combat the Aerospace Enemy Effectively," *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)* 29 April 2015.

⁴⁸⁸ Yuriy Vladimirovich Krinitskiy, "Aerospace Theater of Military Operations Is To Be: Major Aerospace and Strategic Air Operations Involving Military-Space and Missile-Aviation Forces of Leading World States Are Possible in Global Aerospace," *Vozdushno-Kosmicheskaya Oborona Online (Air-Space Defense Online)*, 7 February 2015.

A theater of military operations was defined in the 1983 *Military Encyclopedic Dictionary* as

Part of the territory of a continent with ocean coastal waters, inland seas, and airspace (continental theater of military operations) or the water area of a single ocean, encompassing the islands in that ocean, adjacent seas, landmass coastal strips, and airspace above them (oceanic theater of operations), within the boundaries of which military operations of a strategic force (ground forces, air forces, naval forces) can be organized and conducted.⁴⁸⁹

This concept of a TVD has now been extended due to the merging of air and space mediums into an aerospace TVD, one that fills in the layer of near-Earth space. Airborne command and control, communications, and navigation facilities, refueling points, jammer aircraft loiter zones, and so on enable an aerospace attack to achieve more surprise than is possible in a conventional TVD. An orbital grouping in peacetime can also represent the preparation of outer space in the interests of war. The war footing can be established or aligned in hours or minutes, achieving surprise, since a defending force will not have time to react accordingly. For that reason, Russians believe, an aerospace TVD has to be formed.⁴⁹⁰

The concept has been under investigation since at least 2006. This is indicated by the fact that the *Aerospace Defense Officer's Guide* of that year had a Chapter (Three) titled, "Aerospace Medium as a Theater of Military Operations."⁴⁹¹ The *Military-Political Dictionary* of Deputy Chairman Dmitriy Rogozin's Military-Industrial Commission noted the following:

⁴⁸⁹ N. V. Ogarkov, Chairman of the Main Editorial Commission, *Voennyi Entsiklopedicheskiy Slovar' (Military Encyclopedic Dictionary)*, 1983 Moscow, Military Publishing House, p. 732.

⁴⁹⁰ Krinitskiy.

⁴⁹¹ *Ibid.*

An aerospace TVD is global aerospace within which major military-space and strategic air operations are possible involving military-space and missile-aviation forces of leading world states. This theater is distinguished by...military operations during which space supremacy is won and conditions are created for executing military-space missions, including for repelling an enemy aerospace attack and for delivering strikes against facilities and armed forces from space. The aerospace TVD is broken down by spheres of operations into near-space airspace, near space, mid-space, and deep space.⁴⁹²

It was Italian General Giulio Douhet who stated that “victory smiles on the one who anticipates changes in forms of war, and not on the one who adapts to the changes.”⁴⁹³ This is particularly true in regard to the developing aerospace TVD, since it has become the base for planning operations and preparing the infrastructure to execute specific military-political and military-strategic missions during war.⁴⁹⁴

The Big Four Aerospace Threats to Russia

In June 2014 nearly 200 scientists took part in the 17th All-Russia Scientific and Practical Conference on Defense and Security in Saint Petersburg. The discussion began with a presentation by the President of the Russian Academy of Missile and Artillery Sciences, Vasiliy Burenok, who listed six 21st century military-technical threats to Russia, four of which turned out to be aerospace-related: the US and Chinese missile defense systems; the US’s adoption of hypersonic cruise missiles; NATO’s development of high-speed kinetic weapons, laser

⁴⁹² Ibid.

⁴⁹³ Ibid.

⁴⁹⁴ Ibid.

systems, and weapon control systems; and space technology developments, such as the use of mini- and nano-satellites.⁴⁹⁵

Konstantin Sivkov, the journalist who wrote the article, noted that this will require Russia to equip its forces with the next generation of high-tech weapons operating on new physical principles and supporting the pursuit of contactless and information wars. Robotized models of arms must increase by 20-30 percent as well.⁴⁹⁶ He added that Russia already has a number of breakthrough technologies, such as direct-flow hypersonic jet engines and flight management systems; super-high-yield warheads; laser weapons; small, medium, and large robot-based platforms; 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-array antennas based on radio photon elements; zonal rapidly-deployed active and passive hydroacoustic systems for interpreting the underwater situation; and means of conducting information wars (particularly in cyberspace) and cognitive control.⁴⁹⁷

It was pointed out in the reports that the main threat to Russia's security in the region emanates not from traditional armed forces but rather from the destabilization of very important defense capability subsystems. The range of hostile measures include the advance of pro-Western figures into positions of power, "indirect force operations" ranging from sorties by environmentalists to the staging of political crises and acts of terrorism, and the use of nontraditional military systems based on new physical principles, in particular the deployment

⁴⁹⁵ Konstantin Sivkov, "Information is the Best Defense. Scientists Call for Sixth Technological Generation to be Adopted into the Armory," *Voyenno-Promyshlenny Kuryer Online (Military-Industrial Courier Online)*, 25 June 2014. The other two developments were the improvement of information warfare forces and resources; and the introduction of the sixth technological advances in equipment, which will signal the move to fully intellectual models that implement the concept of "cognicentric" warfare.

⁴⁹⁶ Ibid.

⁴⁹⁷ Ibid.

along Russia's borders of ten plasma systems (in the United States, Canada, Iceland, Norway, and Japan), which provoke earthquakes and other natural disasters.⁴⁹⁸ Deputy Commander of Aerospace Defense Troops Major-General Kirill Makarov noted that such weapons have the potential of blinding reconnaissance equipment or destroying weapons. Russia is researching this weaponry as well.⁴⁹⁹

Russia's missile defense weapons include the following:

- S-300P (SA-10)
- S-300V (SA-12A/B Giant/Gladiator)
- S-300PMU-1/2 (SA-20A/B Gargoyle)
- S-400 (Triumf)
- S-500 (Prometheus)

The Aerospace Troops, comprising three branches, thus incorporates the following:

- Main Command
- Long Range Aviation Command
- Military Transport Aviation Command
- Four air and air-defense armies in military districts
- An air and missile defense army
- An aerospace troops army
- The Ministry of Defense's State Space Test Center
- A number of combined and separate units. Specialized units include electronic warfare, signals, radio-technical and automated command systems support, engineering and meteorological, logistics, and research facilities.⁵⁰⁰

⁴⁹⁸ Ibid.

⁴⁹⁹ Korotchenko.

⁵⁰⁰ *Interfax-AVN Online*, 11 September 2015. See also the Defense Ministry Collegium Session chaired by Army General Sergey Shoygu, at the *Ministry of Defense of the Russian Federation Website*, 11 September 2015.

Why Form a VKS?

One of the primary reasons for forming an Aerospace Force is that defense in aerospace is so different from other defensive postures. When fighting tanks or ground troops the targets are in the same physical environment. Aerospace fights are entirely different. Instead of targets moving at a few kilometers per hour, aerospace defense systems are targeting attacks launched at super-high speeds from hundreds of kilometers away, and the attacking forces are usually unseen. As a result, aerospace defense responses differ significantly from their ground-target counterparts.⁵⁰¹ Warning times are extremely short and destruction can be significant, depending on the target chosen and the force of the incoming projectile/wave.

In April 2015 Makarov provided another reason for forming the VKS: echoing Shoygu, he noted that since the end of the last century the center of gravity (COG) of warfare had shifted to the aerospace sphere. As a result, offensive aerospace weapons have begun executing strategic missions. For that reason Putin approved the aerospace defense concept in 2006 for further development.⁵⁰²

Russia's military sees an aerospace threat from the US in the form of the US Prompt Global Strike capability. The concept, according to Makarov, "presupposes an instantaneous strike against any state which the US considers the enemy within a short space of time, from 40 minutes to two and a half hours."⁵⁰³ The threat could include cruise or intercontinental missiles, as well as hypersonic aerial vehicles.⁵⁰⁴ Russia is also working on a response to the US's X-37 system and to laser weapons. Makarov stated that he cannot disclose what is being done, but that the country is working on ways to counter these threats.⁵⁰⁵ The

⁵⁰¹ A. V. Belomytsev, M. G. Valeyev, and N. L. Romas, "About Ways to Fight against the Aerospace Enemy," *Voennaya Mysl' (Military Thought)*, No. 5 2014, pp. 6-7.

⁵⁰² Igor Korotchenko, "General Makarov: No Offensive Air Weapons are Invisible to Us," *Russkaya Sluzhba Novostey Online (Russian News Service Online)*, 5 April 2015.

⁵⁰³ *RIA Novosti*, 1647 GMT, 4 April 2015.

⁵⁰⁴ *Ibid.*

⁵⁰⁵ *RIA Novosti*, 1708 GMT, 4 April 2015.

global strike threat to Russia has resulted in the Defense Ministry increasing its production of air defense missiles threefold in comparison to 2014.⁵⁰⁶ The organizational changes in the Air Force, according to Defense Minister Sergey Shoygu, began in the middle of 2013, when aerospace defense brigades were restructured into air defense divisions.⁵⁰⁷

To counter the endo-and exo-atmospheric threats that comprise global strike, Makarov stated that the Russian S-500 system will be capable of intercepting targets at distances in excess of 600 km and a ceiling of several hundred kilometers. It will perform theater and strategic missile defense, as well as space defense.⁵⁰⁸ The S-500, it is believed, will operate in tandem with the A-235 *Samolet-M* strategic missile defense system.

Another air defense system is the S-400. In April 2015 it was available in nine regiments, while the S-350 *Vityaz* and Buk-M3 SAM (70 km range) systems should arrive soon. Tactical air defense units are already receiving the S-300V4 with a 400-km range.

In September another explanation of the purpose of the VKS was offered. Maxim Shepovalenko, an analyst at the Center for Analysis of Strategies and Technologies in Moscow, stated that this “new focus reflects lessons learned in the wake of NATO’s intervention in Yugoslavia in the late 1990s.”⁵⁰⁹ Thus, the reason for the merger was to “ensure a prompt response to any attack coming from the air or space...”⁵¹⁰ Finally, he noted that “it is an incomplete integration. Compared to the US Air Force, which wields both the sword and the

⁵⁰⁶ TASS, 9 April 2015.

⁵⁰⁷ “Reorganization of Aerospace Defense Brigades into Air Defense Divisions Completed, Shoygu Reports,” *RIA Novosti*, 1 December 2014.

⁵⁰⁸ Yaroslav Vyatkin, “‘Prompt Global Strike’ Russian-Style,” *Argumenty Nedeli Online (Arguments of the Week Online)*, 16 April 2015.

⁵⁰⁹ Matthew Bodner, no title offered, *The Moscow Times Online* (in English), 3 August 2015.

⁵¹⁰ *Ibid.*

shield, we will be incorporating only the shield.”⁵¹¹ Here it seems he is referring to the fact that Russia’s Strategic Rocket Force is under the purview of a separate military branch.

The Defense Ring around Moscow

The defense ring around Moscow is called the S-50 system, and it can reportedly intercept from 400-800 complex aerodynamic targets simultaneously. As new radar and missile facilities and equipment are added, the defense ring will be termed the S-100. New Konteyner-type beyond-the-horizon radars are aiding distant early warning capabilities. Nebo-M complexes are being delivered. They can operate in several frequency ranges simultaneously at distances of 600-1800 km and altitudes of 600-1200 km. The complex of such systems is being created by the production firm Shlyambur, where work on strategic precision missile weaponry and other fields are brought together. This could include such missiles as the Tsirkon.⁵¹²

One report noted that five surface-to-air systems of the S-400 Triumf variety and anti-aircraft missile and gun systems of the Panzer-S variety (no number given) will ensure the air defense of Moscow and the Central Industrial District in 2015, while mid-range surface-to-air Vityaz systems are being created to replace the old S-300P system.⁵¹³ Another report stated that by 2020 Russia will have five S-400 missile regiments and 20 Pantsir-S missile battalions. Further, Sukhoi Su-35S, Mikoyan MiG-35S, and T-50 fighters are being procured to confront and destroy hypersonic and ballistic missiles. Fighter jets now are used not only to gain air superiority but also to confront enemy attack means in near-Earth space.⁵¹⁴ Radar “aids” to be received in 2015, whose acquisition will double the current number, include the “Fundament” model range of automated control systems, the “Podlet-K” and “VVO” radar stations, the “Test” training system, and others. In 2014 ten sets of new-

⁵¹¹ Ibid.

⁵¹² Ibid.

⁵¹³ *Interfax* (in English), 10 January 2015.

⁵¹⁴ *Interfax* (in English), 8 December 2014.

generation radar equipment, such as the “Nebo-M,” “Podlet-K,” and “VVO,” were received.⁵¹⁵ These new systems, due to their increased range and accuracy, will reduce the number of radars around Moscow fourfold by 2021.⁵¹⁶

A VKO exercise in January 2005 involved a simulated attack on Moscow. In the exercise S-400 Triumf, S-300 Favorit air defense missile systems and Pantsir-S anti-aircraft missile and gun system 421176 took part. The Don-2N radar was used to detect and destroy ballistic targets with electronic launches of interceptor missiles. Target roles were assumed by MiG-31 and Su-27 fighter planes. More than 50 missile launches were simulated.⁵¹⁷ The Don-2N radars, which reportedly can get a fix on missile launches several thousand kilometers away, are part of the system known as the A-135. The 96L6Ye (or VVO all-altitude target detector) was used as well. It can identify aircraft, helicopters, UAVs, and missiles, and can track up to 100 targets simultaneously.⁵¹⁸

The Russian A-135 anti-ballistic missile system, operational since 1995, is currently situated only around Moscow, but it is being augmented to protect other major cities in Russia. A successor to the previous A-35, it complies with the 1972 Anti-Ballistic Missile Treaty, the Russians state, from which the US unilaterally withdrew in 2002. It is currently operational although its 53T6 (NATO: SH-11) component has been deactivated (as of February 2007). A newer missile is expected to replace it. The S-300PMU1 and PMU2 can intercept SRBMs, and the S-

⁵¹⁵ “Aerospace Defense Troops To Reduce Fourfold the Range of Radar Aids Purchased for Moscow Air Defense,” *MK Online (Moscow Komsomolets Online)*, 20 February 2015.

⁵¹⁶ *Interfax* (in English), 19 February 2015.

⁵¹⁷ *Interfax-AVN Online*, 27 January 2015.

⁵¹⁸ “Moscow Missile Defense Destroyed Missiles and Aircraft of Simulated Enemy with Help of New Systems,” *Newsru.com*, 27 January 2015.

300V and S-400 Triumf systems are capable of intercepting a multiple IRBM attack by all DF-21 model IRBMs.⁵¹⁹

Other Issues

In late January 2015 Prime Minister Dmitriy Medvedev submitted a proposal to Putin to merge the United Rocket and Space Corporation (ORKK) with the Federal Space Agency (Roskosmos). ORKK General Director Igor Komarov was recommended to be its new head.⁵²⁰ In February it was announced that the Almaz-Antey enterprise would be reorganized. This aerospace concern specializes in the design and manufacture of air defense weapons. It will now add the “means” of space defense to its products. The A. I. Berg Central Radio Technology Research Institute and the Kometa Corporation for special-purpose space systems will also be included in the reorganized enterprise. The institute and corporation were, until recently, part of the Roskosmos structure.⁵²¹ In another development, the Radio-Electronic Technology Concern is developing an aerospace-based integrated multifunctional electronic warfare system for the army. The system will offer “wide-band passive radar coverage,” which, according to one source, will “have an intellectual-and-disinformation effect” on a potential adversary.⁵²²

The enhanced but yet to be produced S-300VM/VMK is capable of intercepting ballistic missiles with a range of 2,500 km and re-entry speeds of 4.5 km/s, whereas the S-400 is claimed to be capable of intercepting ballistic missiles with a range of 3,500 km, which equates to re-entry speeds of 4.8 to 5 km/s. A system designed to intercept warheads at 5 km/s has the ability to act as a point system against simple ICBM warheads, which have a typical re-entry speed of 7 km/s. Apart

⁵¹⁹ Wikipedia, accessed on 21 July 2015, at

https://en.wikipedia.org/wiki/Missile_defense_systems_by_country#Russia

⁵²⁰ Aleksey Nikolskiy, “Space as Corporation,” *Vedomosti Online (The Record Online)*, 22 January 2015.

⁵²¹ *Interfax* (in English), 6 February 2015.

⁵²² *Interfax-AVN Online*, 3 February 2015.

from the main Moscow deployment, Russia has striven actively for intrinsic ABM capabilities of its late model SAM systems.⁵²³

The S-500 (and the S-400) most likely will use the 77N6-N and the 77N6-N1 missiles. They were reported to be capable of direct engagement with targets flying at hypersonic speeds (seven kilometers per second). However, it is not clear when the 77N6-N and the 77N6-N1 will enter service. The S-500 is expected to use the following radars: the 91N6A (M) acquisition and battle management radar, the revised 96L6-TsP acquisition radar, and the new 76T6 multimode engagement and 77T6 ABM engagement radars.⁵²⁴ Further, the Aerospace Forces have in their inventory some 125 aerodromes. About 80 percent require upgrades, and the repair will last until about 2020.⁵²⁵

Of interest is that specialists from the Peter the Great Military Academy in Serpukhov have reportedly “devised and successfully tested a generator which is capable of hiding mobile missile installations with an aerosol curtain.”⁵²⁶ Composed of a pulsing combustion chamber, it forms an artificial cloud that covers the Yars, Topol, and Topol-M systems with tiny dispersible particles and is capable of hiding the missiles from space observation. The generator can also be used as a thermal generator to heat hangars or in aerosol form to disinfect military equipment.⁵²⁷ Speaking of Yars, there was also a report that holographic images that are identical in size to Yars launchers may, with laser device assistance, help mask objects as well. The images “can disguise objects as their background or as objects designed for a different purpose.”⁵²⁸

⁵²³ Ibid.

⁵²⁴ See “Missile Threat,” A Project of the George C. Marshall and Claremont Institutes, at <http://missilethreat.com/defense-systems/s-500/>

⁵²⁵ *Interfax* (in English), 3 August 2015.

⁵²⁶ *Tass*, 6 October 2015.

⁵²⁷ Ibid.

⁵²⁸ *Interfax* (in English), 8 October 2015.

Space Troops

The Space Command Troops include the Main Missile Attack Warning Center, whose space echelon monitors the launch of ballistic missiles of other nations and whose ground echelon monitors their flight. A Unified Space System is supporting the space echelon, while new Voronezh-type radars are active components of the ground echelon. Near Moscow the Don 2N radar system performs missions in support of missile defense. The Main Space Situation Reconnaissance Center is responsible for warning about foreign objects that might impact the International Space Station. Finally the Main Space Systems Test Center is developing both the space and ground echelons.⁵²⁹ Outside of Russia the Volga and Dnepr radars are located in Belarus and Kazakhstan, respectively, and the Okno space surveillance system is located in Tajikistan.⁵³⁰

Two educational institutes support the VKO: the Aleksandr Fedorovich Mozhayskiy Military Space Academy in Saint Petersburg (with a branch in Yaroslavl), which trains air defense force specialists; and the Zhukov Air Defense Troop Air Academy in Tver, which trains specialists for missile attack warning systems. In addition, a science company for air defense troops has been established.

Defense Minister Shoygu stated that the Aerospace Forces command and measurement complex, based in Yevpatoria (Crimea), will have advanced satellite control equipment. New-generation Voronezh radars have entered service in Orsk, Kaliningrad, and Irkutsk, while trial service is underway in Yeniseisk and Barnaul.⁵³¹ Another report noted that five more Voronezh-class radars are being positioned in Russia (three are now being created in Yeniseisk, Barnaul, and Omsk, and work is under-way to build stations in Vorkuta and Murmansk). This will

⁵²⁹ Durnovo and Nestechuk.

⁵³⁰ Ibid.

⁵³¹ *Interfax* (in English), 30 March 2015.

bring the totally number of Voronezh-class radars in Russia to twelve, according to the article.⁵³²

Air Force

According to one report, the Defense Ministry has plans to acquire nearly 1,000 new planes and helicopter by 2020, which will ensure that seventy percent of the Air Force's equipment is new.⁵³³ Included in the purchases are the following:

- 30 Mikoyan MiG-35S multirole fighter jets, contract concluded by 2018.⁵³⁴ At present, the delivery of 48 Su-35 multirole fighters is being implemented.⁵³⁵
- T-160 strategic bomber production will be restored and ready for delivery to the troops in 2021. Fifty aircraft will be delivered for service.⁵³⁶
- PAK FA T-50 fighter aircraft, with deliveries to start in 2017.⁵³⁷ Tests are to be completed by the end of 2016. Also known as the Prospective Airborne Complex of Frontline Aviation, this multirole fighter jet is composed of composite materials and innovative technologies, aerodynamic configurations, and low radar, low optical, and low infrared signatures.⁵³⁸ This advanced long-range system is expected to replace the Tu-95 and the Tu-22 bombers. It may not be ready before 2025.⁵³⁹
- An *Interfax* report stated that more than 45 modern aircraft will be fielded before the end of 2015. They

⁵³² *Interfax* (in English), 17 August 2015.

⁵³³ *Interfax* (in English), 12 August 2015.

⁵³⁴ *Interfax* (in English), 12 August 2015.

⁵³⁵ *Interfax* (in English), 26 August 2015.

⁵³⁶ No author listed, "Tu-160 Expected in another Six Years," *Gazeta.ru*, 27 August 2015.

⁵³⁷ *Interfax-AVN Online*, 26 September 2015.

⁵³⁸ *Interfax* (in English), 28 September 2015.

⁵³⁹ "Tu-160 Expected in another..."

are the Su-30SM, the Su-30M2, Mi-28 attack helicopters, Mi-8AMTSh transport attack helicopters, and three Su-34 fighters.⁵⁴⁰

Strategic Rocket Forces

Chief of the General Staff Valery Gerasimov noted that a centralized battle management focus for the Strategic Nuclear Forces (SYaS) was a priority mission that was fulfilled with the creation of the National Defense Management Center (NDMC, also referred to as the National Defense Control Center elsewhere in this book, due to different translations of the term *upravleniya*). The SYaS Command and Control Center, part of the NDMC, is where leadership decisions will be made for the employment of nuclear weapons in emergencies. Another priority mission was the completion of a Unified Space System:

It is planned to have in its makeup an orbital grouping of ten specialized new-generation spacecraft and modernized command posts providing command and control of the orbital grouping and automatic reception, processing, and transmission of special information to consumers. The new spacecraft will be multifunctional and not only capable of reliably determining the fact of the launch of any ballistic missiles and tracking their flight paths, but also...they will comprise the space segment of the automated system for battle management of the SYaS.⁵⁴¹

There are specific acronyms associated with these forces and troops that are noted here for future use, and several are used in the discussion that follows. They are:

⁵⁴⁰ *Interfax* (in English), 6 October 2015.

⁵⁴¹ Viktor Yesin, "Peace Vehicles—Part II: It is Time to Eliminate the Gap between Advanced Engineering Solutions and Defense-Industrial Complex Production Capabilities," *Voyenno-Promyshlennyi Kuryer Online (Military-Industrial Courier Online)*, 25 February 2015.

- Strategic Nuclear Forces (SYaS)
- Strategic Missile Troops (RVSN)
- Naval Strategic Nuclear Forces (MSYaS)
- Strategic Missile Submarine Cruiser (RPKSN, with eight Borei-class of this type planned)
- Submarine-Launched Ballistic Missiles (SLBM)
- Air Strategic Nuclear Forces (ASYaS)
- Long-Range Aviation (PAK DA, with modernized Tu-160s)
- Air-Launched Cruise Missiles (KRVBs)
- Nuclear Warheads (YaBZ)
- Missile Complex (RK)
- Heavy Bomber (TB)
- Missile Defense (PRO)
- Developmental Projects (OKR)
- and Rail-Mobile Combat Missile Complex (BZhRK).

Due to the country's geostrategic position and huge land mass, Russia's SYaS place their main emphasis on ground components. As a result, 60 percent of delivery vehicles and some two-thirds of its nuclear warheads are located there. Much of the force will be shrinking in the coming years, however. By 5 February 2018, under the START III agreement, aggregate numbers of launchers, missiles, bombers, and warheads will not be able to exceed 700 for deployed ICBMs, SLBMs, and TBs; 1,550 for warheads on deployed ICBMs and SLBMs, and nuclear warheads for deployed TBs; and 800 for deployed and non-deployed ICBM launchers, SLBM launchers, and TBs.⁵⁴²

Retired Colonel-General Viktor Yesin, a former Chief of Staff for the Strategic Rocket Forces, noted that by 2021 the RVSN will have two kinds of basing: silo-based (Topol-M RK, Yars RK, and an RK with a

⁵⁴² Viktor Yesin, "Peace Vehicles—Part I: Voyevoda Will Hold Out to the Last," *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 18 February 2015.

heavy-class ICBM) and mobile (Topol-M RK, Yars RK, Yars-M RK, and BZhRK). The heavy-class RK will be a liquid-propellant missile and the rest will be solid-propellant missiles.⁵⁴³ Russia's inventory of missiles in the Ground, Naval, and Air Force (followed by the NATO classification when available) are as follows:

RVSN

- RS-20V/R-36M2: the Voyevoda or SS-18 Satan can be equipped with ten warheads (with an 11,000-km range) or one warhead (with a 16,000-km range); it should remain in the force until 2022, and will be supplemented by the new Sarmat ICBM in two years, which eventually will replace it
- RS-18/UR-100N: the Stilet or the SS-19 Stiletto can carry up to six nuclear warheads with a 10,000-km range; it should remain in the force until 2019
- RS-12M/RS-12M1: this ground mobile Topol or SS-25 has a single warhead and a 10,500-km range and should be in the force until 2019; it is to be replaced by Yars in the future
- RS-12M2: this silo-based Topol-M or SS-27 Sickle B carries a single warhead with an 11,500 km range
- R-24: this ground mobile Yars or SS-29 can carry six nuclear warheads with a 10,500-km range; it should remain in service until the mid-2030s; there is also a silo-based Yars

MSYaS (RPSKNs with SLBMs are in the Northern and Pacific fleets)

- Project 667BDR (Kalmar): there are two of these RPSKNs with a sum total of 32 RSM-50s (R-29RKU or SS-N-18) armed with the D-9R, which can each carry three nuclear warheads with a range of 6,500 km

⁵⁴³ Yesin, "Peace Vehicles—Part II."

- Project 667BDRM (Delfin): there are six of these RPKSNs with a sum total of 96 RSM-54 (R-29RMU or SS-N-23) SLBMs, armed with the D-9RM, which can carry four nuclear warheads with an 8,300 km range; an improved RSM-54 was developed in 2014 named Layner, capable of carrying ten low-yield nuclear warheads
- Project 941 (Akula): although six of these RPKSNs were produced with 20 RSM-52 (R-39U or SS-N-20), armed with the D-19, only one remains in service, the Dmitriy Donskoy, which now has the RSM-56 SLBM (Bulava) and is known as the 941U. It can carry ten nuclear warheads with an 8,300-km range
- Project 955 (Borei): there are three (Yuriy Dolgorukiy, in the Northern Fleet; Aleksandr Nevskiy and Vladimir Monomakh, in the Pacific Fleet) with a sum total of 16 RSM-56 (R-30 or SS-N-32) armed with a shipboard missile complex, capable of carrying 6-10 nuclear warheads with a range of 9,300 km when armed with six warheads and 8,000 km when armed with ten.

ASYaS (armed with KRVBs)

- Tu-95MS6 (Bear-H6): there are 27 of these TBs armed with six Kh-55 cruise missiles on each bomber for a total of 162, with a flight range of 10,500 km without refueling; the Kh-55 (RKV-500A or AS-15A) has a range of 3,500 km.
- Tu-95MS16 (Bear-H16): there are 28 of these TBs, armed with 16 Kh-55s cruise missiles on each bomber for a total of 448, with a flight range of 6,500 km without refueling
- Tu-160 (Blackjack): there are 11 of these TBs armed with 12 Kh-55SM cruise missiles on each bomber for a total of 132, with a range of 10,500 km without refueling; the Kh-55SM (RKV-500B or AS-15V) has

extended flight range due to the installation of additional fuel tanks⁵⁴⁴

Planned KRVBs

- Kh-101 is planned: it will have a fragmentation-high-explosive warhead, with a possible option of a high-explosive, fuel-air explosive, and cluster warhead
- Kh-102 is planned: it will have a nuclear warhead⁵⁴⁵

These KRVBs reportedly have a maximum range of 5,000-5,500 km. They are equipped with electro-optical correlation systems, integrated GLONASS system receivers, and an electro-optical homing head. The terrain-following missile will be at altitudes of 30-70 m. If these characteristics conform to reality, then the Tu-160 and Tu-95MS TBs will greatly increase their combat capabilities.⁵⁴⁶

Another way that Russia has restored its missile shield is through the announcement that it will be resurrecting its rail-mobile ICBM system. This is in response to the US global strike platform. In the Soviet era the RT-23 Molodets (NATO classification as the SS-24 Scalpel) was the rail-mobile combat missile complex (BZhRK). It will be replaced by the Barguzin BZhRK, which should become operational by 2020. The main weapon of the Barguzin will be the RS-24 Yars missile, which contains four warheads. Each Barguzin will carry six Yars. Like Molodets it can be hidden from space surveillance among “the thousands of railroad trains bustling throughout the expanses of an enormous country daily.”⁵⁴⁷ It took less than three minutes for the Molodets to receive an order and execute it by launching the first missile.⁵⁴⁸ Whether such parameters are available for the Barguzin is not known.

⁵⁴⁴ Yesin, “Peace Vehicles—Part I”

⁵⁴⁵ Yesin, “Peace Vehicles—Part II”

⁵⁴⁶ Ibid.

⁵⁴⁷ Vadim Ponomarev, “The Elusive Barguzin: A Big Surprise for the United States,” *Expert Online (Expert Online)*, 22 June 2015.

⁵⁴⁸ Ibid.

Another journalist describing the Barguzin added more information about the system. First, the railroad infrastructure for missile trains (reinforced tracks in the patrol zone, launch sites, and basing locations) remain. Second, each missile train will be armed with six RS-24 Yars, “the ground version of the naval Bulava.”⁵⁴⁹ Thus, this is a multipurpose complex that can operate both at sea and on land. Crews can stay in the Barguzin up to one month, and the train can travel up to 1,000 km in a day and it can hide in a dense forest or in tunnels. Other concealment means include powerful electronic warfare systems and defenses against terrorists. The range of fire is 10,000 km, although in the article’s accompanying the Bulava diagram it was 8,000 km. The train consists of three diesel locomotives, a command post and duty shift “barracks” of seven cars, a tank car with POL supplies, and three launchers with missiles.⁵⁵⁰

Other missile variants are as follows:

Intercontinental Ballistic Missiles

- RS-26: Rubezh or Avangard: an ICBM that is road mobile and is the ground-mobile Yars-M RK

Intermediate-Range Missiles

- RSM-10: Pioner or SS-20 Saber; an intermediate-range ballistic missile

Short-Range Ballistic Missiles:

- OTR-21: Tochka or SS-21 Scarab; a short-range ballistic missile system
- OTR-22: Temp-S or SS-22 Scaleboard; a short-range ballistic missile system that is road mobile
- Iskander-M: successor to the Oka or SS-23 Spider; a short-range ballistic missile

⁵⁴⁹ Sergey Ptichkin, “Train Number One: Russia Completed Design of Super Powerful Weapon,” *Rossiyskaya Gazeta Online (Russian News Online)*, 4 June 2015.

⁵⁵⁰ Ibid.

The RS-26 Rubezh was created on the basis of the RS-24 Yars. It will have lighter missiles and thus shorter range. Launched only from mobile systems, it will have better armament and a multiple re-entry warhead, weighing under 80 tons. Speculation is that it is a Russian response to the construction in Europe of US missile defense assets, since Deputy Prime Minister Rogozin described the US system as a killer of missile defense assets. Experts state that the Russian system can change height and direction during flight. The system is scheduled to be fielded in 2016.⁵⁵¹

Developing Hypersonic Weapons

In March 2015 the *Military-Industrial Courier Online* noted that Yuri Baluyevskiy, the Chief of the Russian General Staff from 2004-2008, had announced in 2004 that a spacecraft was tested that was capable of flying at hypersonic speed “while maneuvering both in course as well as altitude.”⁵⁵² The missile would thus be capable of penetrating all missile defense systems currently in existence. The article noted that the first mention of the missile’s designation, Project 4202, came in 2007.⁵⁵³ In June 2015 an *Internet* report stated that Russia’s hypersonic Mach 10 Yu-71 missile, part of a secret missile program codenamed Project 4202, had a probable speed of up to 11,200 km/h (7,000 mph).⁵⁵⁴ This is more than five times the speed of sound.

Russia’s *Sputnik News*, citing a report from *Jane’s Information Group*, noted that Russia may put as many as 24 nuclear-capable Yu-71 missiles in service from 2020 to 2025. The Sarmat ICBM is expected to carry the new hypersonic device. According to the report, the PAK DA, the next-generation strategic stealth bomber, will be armed with

⁵⁵¹ Unattributed report, “Killer of Missile Defense Assets,” *Rossiyskaya Gazeta Online (Russian News Online)*, 17 September 2015.

⁵⁵² Aleksey Ramm and Dmitriy Kornev, “Hyperdeath Coming Soon: VPK Correspondents Traced Launches of Secret Weapons,” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 25 March 2015.

⁵⁵³ *Ibid.*

⁵⁵⁴ See <http://nextbigfuture.com/2015/06/russia-has-fourth-test-of-mach10-yu71.html>

hypersonic cruise missiles.⁵⁵⁵ Another report referred to the bomber's cruise missile as the Kh-90, capable of speeds up to Mach 4.5.⁵⁵⁶

One *Interfax* report stated that up to six launches of Project 4202 were performed in the last decade using the RS-18B (UR-100-N UTTH) intercontinental ballistic missile from the Baikonur spaceport.⁵⁵⁷ Another *Interfax* report stated that tests of the system would continue in 2015 and that Project 4202 was an “intermediate stage in the creation of a newer combat payload for the existent and prospective heavy intercontinental ballistic missiles, including the RS-28 Sarmat.”⁵⁵⁸

Crimea, the Arctic, and Aerospace Assets

Lieutenant-General Aleksandr Golovko, the Commander of the VKO, noted that there is special attention being given to the restoration of VKO troops on Crimea. He said that its geographic location provides “great advantages for accomplishing space surveillance and spacecraft control missions.”⁵⁵⁹ Russia now must restore VKO infrastructure, as well as the missile attack warning system on the peninsula. On 1 December 2014 the Yevpatoriya complex in Crimea became the chief center for space system testing and control. It also appeared to be linked to the Titov Main Space Test Center in Krasnoznamenensk in the Moscow region. The Separate Telemetry Complex in Yevpatoriya will have its computer facility and engineering and technological systems modernized. The Deep Space Communications Center in Yevpatoriya began operations in 1961. It controlled nearly every Soviet space craft for 20 years. Its equipment was practically unused in the Post-Soviet

⁵⁵⁵ No author listed, “Secret Russian Hypersonic Nuke Glider Can Pierce Any Missile Defense,” *Sputnik (Satellite)*, 28 June 2015.

⁵⁵⁶ Sergey Ptichkin, “We Will Fly at Hypersonic Speed: Work Continues on Creating New-Generation Missiles,” *Rossiyskaya Gazeta Online (Russian News Online)*, 22 July 2015.

⁵⁵⁷ *Interfax* (in English), 22 July 2015.

⁵⁵⁸ *Interfax* (in English), 22 July 2015.

⁵⁵⁹ Anna Potekhina interview with Aleksandr Golovko, “1 December—Aerospace Defense Troops Formation Day: a Space Grouping from the Arctic to Crimea,” *Krasnaya Zvezda Online (Red Star Online)*, 29 November 2014.

period, but is now controlling spacecraft of the Russian orbital grouping. It has been connected to the space monitoring system.⁵⁶⁰

Another unit that conducts tracking and telemetry during launches of strategic missiles and spacecraft for the Space Troops, Strategic Missile Troops, and the Navy is located in the northernmost unit of the Plesetsk cosmodrome.⁵⁶¹ Organizing VKO presence in the Arctic is a priority mission. Radio-technical troops went on alert duty on 1 November 2014 there. A Unified Space System is envisaged for the near future; it will allow around-the-clock monitoring of missile threat areas. Tests of the Angara rocket at Plesetsk are ongoing as well. Containerized radar equipment is under development. Included are radars such as the Podlet-K1, Gamma-M, and the Nebo series. So this was a very busy time for the VKO,⁵⁶² before its eventual integration into the VKS.

Conclusions

The creation of an Aerospace Force is a tremendous organizational change for the Russian military. Perhaps the main reason for the change was the realization that there had been a “shift of the ‘center of gravity [COG]’ in combat struggle to the aerospace sphere,” according to Defense Minister Shoygu’s statement in August 2015.⁵⁶³ The discussion in the journal *Military Thought* about creating an aerospace theater of military operations represented one of the most important indicators of the significance of the COG shift of military struggles and offered a rationale for the reorganization. The new COG will require different methods for conceptualizing aerospace reality. Russia did not want to lag behind in its military development and thought the VKS would be a quick way to modernize.

⁵⁶⁰ Ilya Isotov, “Crimea to be Provided with New Aerospace Defense Systems,”

Rossiyskaya Gazeta Online (Russian News Online), 21 February 2015.

⁵⁶¹ “You Think Differently Here,” *Zapolyamyy Vestnik Online (Beyond the Polar Circle Journal Online)*, 14 April 2014.

⁵⁶² *Ibid.*

⁵⁶³ *Interfax* (in English), 3 August 2015.

Russia's military offered three reasons for the reorganization effort. Primarily, defense in aerospace is very different from other defense postures. Aerospace defense systems are defending against attacks launched at them at super-high speeds from hundreds of kilometers away, which makes warning times extremely short and the destruction potentially significant, depending on the target chosen and the destructive force of the incoming projectile/wave. Secondly, as Deputy Commander of Aerospace Defense Troops Major General Kirill Makarov asserted in April 2015 (and repeated by Shoygu in August), since the end of the last century the COG of warfare has shifted to the aerospace sphere. Finally, Russia's military sees an aerospace threat from the US in the form of the Prompt Global Strike concept, which, according to Makarov, "presupposes an instantaneous strike against any state which the US considers the enemy within a short space of time, from 40 minutes to two and a half hours."⁵⁶⁴ The threat could include cruise or intercontinental missiles, as well as hypersonic aerial vehicles.⁵⁶⁵

It will take some time for the various components to adjust to such a significant change. Several journalists have stated that they believe the change will not work. Alexander Golts, a prominent Russian author on military affairs for many years, believes the changes will not result in any changes to armed forces management.⁵⁶⁶ Doctor of Military Sciences Konstantin Sivkov, President of the Academy of Geopolitical Problems, thinks that uniting the military space forces and the missile-defense systems would make more sense, since they fight objects coming in through the space sphere. Adding the Air Force makes as much sense as adding the Navy, Sivkov noted.⁵⁶⁷

The military leadership kept the Strategic Rocket Forces out of the reorganization plan. This makes sense, since this force was and will

⁵⁶⁴ *RIA Novosti*, 1647 GMT, 4 April 2015.

⁵⁶⁵ *Ibid.*

⁵⁶⁶ Alexander Golts, no title provided, *The Moscow Times Online* (in English), 10 August 2015.

⁵⁶⁷ *RIA Novosti*, 4 August 2015.

remain in the coming years as the strongest deterrent Russia has to any attack on the Motherland. Thus, as the VKS continues its reorganization, the SRF is developing new missile variants. The end result is a more potent force.

CHAPTER SIX: RUSSIA PREPARES FOR FUTURE WAR

Introduction

The concept of future war has long been a topic of intense interest for the Soviet and now Russian military. This chapter offers a summary of recent thinking in the Russian military regarding future war, picking up the discussion after 2011 (when future war was described in this author's book, *Recasting the Red Star*). The chapter begins with a look at Russian technological developments affecting future war in the following order: the field of robotics; the innovative suggestions for equipment development from Russia's Advanced Research Foundation (the country's equivalent of the US's Defense Advanced Research Projects Agency or DARPA) and the military's Intra-Branch Research Special Projects Directorate; and the work of the military's new science companies. The chapter concludes with a look at future war references in the most recent 2014 Military Doctrine of the Russian Federation as well as the conceptual views found in military journals that discuss both the characteristics of a future war and how one might be fought.

Automatons in Epaulettes

Some Russian analysts believe tomorrow's wars will be fought without human participation. To prepare for that eventuality, Russia is working hard to prepare selected robotic equipment to conduct reconnaissance on land and sea, to fight fires, to conduct rescue missions, to fight in cities and the countryside, and to evacuate wounded soldiers from the battlefield. Only recently did Russia appear to develop a strategy indicating what type of robots are required.

This section looks at developments in robotic technology in Russia over the past three years. One of the most promising developments was the 2012 establishment of the System for Advanced Military Research and Development of the Ministry of Defense (SPIVR). Subordinate to it are the Main Directorate for Innovative Research (GUNID), the Main Directorate for the Development of Information and

Telecommunication Technologies (GURITT), and the Main Research and Test Center for Robotics (GNITsRT).⁵⁶⁸

2013-2014

Robots fascinate everyone, it seems. Russia's Tank-Biathlon contests of 2013 and 2014 were no exceptions. The first competition opened with an android cutting the ribbon and last year a metal ribbon was cut with a laser beam controlled by a robot.

In August 2013 Colonel-General Oleg Ostapenko, the Deputy Defense Minister of Russia, gave a strong indication of the growing importance of robots in an interview on the defense ministry's "Innovation Day." He announced that the ministry is forming an integrated targeted program that will saturate the troops with robotics. The time frame for reaching this goal is 2020-2025, which may require a reallocation of funding. A Main Robotics Center to implement these programs has been developed, located on "holdings" of the former Zhukovskiy Air Engineering Academy, near the Dynamo subway station in Moscow. Laboratories have been built and specialists are in place. Activities include studying robotic needs, developing support requirements for models of arms and equipment, and transferring models to industrial production. It was noted that a unique military robot would be produced in 2014, one with a tracked chassis equipped with a hybrid engine that can clear terrain of mines and perform other missions.⁵⁶⁹ In September 2014 it was reported that military engineers had cleared mines from farmland and forests in Chechnya using just such a hybrid engine, which was placed on the Uran-6 mine clearing robot.⁵⁷⁰ The Uran-6 remote-controlled multi-functional robotic mine-clearing system reportedly can do in a day the work equivalent of 20 combat

⁵⁶⁸ See the website of the *Ministry of Defense of the Russian Federation*, most notably the link at http://structure.mil.ru/structure/ministry_of_defense

⁵⁶⁹ Interview with Oleg Ostapenko, "Russian Federation Defense Ministry Innovations Day: Russian Deputy Defense Minister Colonel-General Oleg Ostapenko Held a Press Conference," *VPK.name (Military-Industrial Courier.name)*, 9 August 2013.

⁵⁷⁰ *Interfax* (in English), 1 September 2014.

engineers.⁵⁷¹ It has an adequate power-to-weight ratio (32 hp/t), can be controlled from 1,000 meters away, and can withstand explosions of up to 60 kilograms of TNT.⁵⁷²

There were many reports on the development of robots in 2014. They serve all types of military functions and branches of service. Oleg Martyanov, who manages the Combat Robot Laboratory Interdepartmental Working Group, noted that the Russian Armed Forces are developing *separate combat robot companies in each military district* and in the fleets in accordance with the Robot Complex Development and Combat Employment Blueprint for the period to 2025. The first real advancements, however, are expected as early as 2017-2018, which indicates that a variety of robot technology systems will soon be on the battlefield.⁵⁷³

As but one example, Russia's strategic rocket missile systems now reportedly have a mobile robot complex to protect them. It will be part of the groups' mobile automated security system. Using the new system

One can conduct reconnaissance, detect and destroy fixed and mobile targets, carry out fire support of subunits, and patrol secure facilities and grounds. It is equipped with a Kord heavy machinegun, a Kalashnikov tank machine gun, and a mounted 30-mm automatic grenade launcher. The unique robot complex permits weapons guidance and target tracking and destruction in the automatic and semiautomatic mode. It is equipped with optical-

⁵⁷¹ Unattributed report, "An Exercise with Military Engineers is Being Held at the Russian Military Base in Armenia," *Ministry of Defense of the Russian Federation Website*, 22 July 2014.

⁵⁷² Unattributed report, "Eastern Military District Engineering Troops to Receive Newest Uran-6 Minesweeper Robot," *Ministry of Defense of the Russian Federation Website*, 2 October 2015.

⁵⁷³ Yuriy Gavrilov, "The Army: Combat Robot Companies Will Be Created in the Russian Army," *Rossiyskaya Gazeta Online (Russian News Online)*, 7 November 2014.

electronic and radar reconnaissance equipment... All of this permits it to combat saboteurs even at night.⁵⁷⁴

Robots will also be developed on the so-called Avatar Principle, which means adapting the robot to the physics of a human's behavior, so that the robot can transmit a signal to the machine.⁵⁷⁵

For the Navy, it was reported that fifth-generation submarines will have robots, which will be the generation after the Yasen and Borei types. Admiral Viktor Chirkov, Commander-in-Chief of the Russian Navy, stated that in the future submarines will "be enhanced through the integration of future robotic systems into their arms arsenal."⁵⁷⁶

During the Ministry of Defense's Innovation Day in 2014, Georgiy Antsev, a general designer of the Morinformsystema-Agat Concern, noted that in order to protect maritime areas, surface, underwater, and flying robots are required. Antsev noted that his group can create robotic systems to protect ports and border areas. Together, the system consists of "robot-controlled boats, unmanned planes and helicopters, various types of buoys, sensors controlling aviation systems, and gliders."⁵⁷⁷ The group also develops and supplies ships with digital computer systems for sea-based missile systems, target detection, and target designation.⁵⁷⁸

The Institute of Problems of Marine Technologies also developed an underwater robot, which can scan the seabed for threats at high speed, using a multifunctional lighting system, and destroy such threats if necessary. The robots can work in pairs, with one robot sighting an object (e.g., a mine) and another device brought to the site with an aimed explosion device to destroy the threat. These robots, made of high-

⁵⁷⁴ Ibid.

⁵⁷⁵ Ibid.

⁵⁷⁶ *RIA Novosti*, 17 June 2014.

⁵⁷⁷ "Russian Scientists Have Developed a System of Robots for Protection of the Seas," *RIA Novosti Online*, 4 August 2014.

⁵⁷⁸ Ibid.

strength aluminum, can operate at depths up to 12,000 meters.⁵⁷⁹ Leonid Naumov, the director of the institute, stated that such a remotely-operated vehicle could perform these functions (mine detection, destruction, etc.) based on its equipment. The latter included an autopilot, navigation system, sonar locator, manipulator, and other systems.⁵⁸⁰ On 8 July the *Moscow Times* reported that Russia is developing an underwater robot to protect Russian shores from underwater intruders, and the research includes methods of detecting and locating ultra-quiet underwater objects. No name was provided for this special underwater robot.⁵⁸¹ Another report stated that a robot submarine was being created at a robot technology laboratory, again to detect moving objects far away from the territory being protected.⁵⁸²

For the Army, it was reported in June that tracked Platforma-M combat robots, armed with four grenade launchers and a Kalashnikov machine gun, would support motorized infantry units and paratroopers during exercises. In this case, the robots supported Russian forces fighting illegal armed units in urban areas. Stationary and mobile targets were hit. The robots assisted in the reconnaissance of enemy minefields, aiding in the selection of lanes in order to pass through them.⁵⁸³ Another report stated that a test model of a mobile reconnaissance strike robot had been created. Together with the Tayfun-M armored counter-saboteur vehicle and an unmanned aerial vehicle, it will be involved with detecting and liquidating saboteur-reconnaissance formations.⁵⁸⁴

A report in *Russia beyond the Headlines* noted that by 2025 at least 30 per cent of the military technology in the Armed Forces will include robotic hardware. Five robots that are in service now include the

⁵⁷⁹ Sergey Ptichkin, "Stop, Whoever is Afloat! Underwater Robots Will Protect Marine Bases," *Rossiyskaya Gazeta Online (Russian News Online)*, 19 September 2014.

⁵⁸⁰ *ITAR-TASS*, 17 September 2014.

⁵⁸¹ Unattributed report, *The Moscow Times Online* (in English), 8 July 2015.

⁵⁸² Anton Valagin, "Underwater Robots Will Protect Russia's Sea Borders," *Rossiyskaya Gazeta Online (Russian News Online)*, 9 July 2015.

⁵⁸³ *Interfax* (in English), 20 June 2014.

⁵⁸⁴ Gavrilov.

Platform-M (missions include reconnaissance, patrol, and guard duties, while armed with a grenade launcher and a machine gun); the Wolf-2 mobile robot (an off road tracked chassis, controlled remotely up to three miles away, uses Kalashnikov machine guns and large-caliber Utes and Kord machine guns, can fire while moving at 22 mph, has an imager, laser rangefinder, and a gyrostabilizer, and is to be used as a guard for Tobol-M and Yars missile systems); Uran-6 (demining system controlled remotely up to .6 miles away, has bulldozer blades and trawls); the Shooter robot-commando (Shooter or Strelets is a machine gun fixed atop a tracked chassis that can storm buildings in urban areas; it is slow moving but can ascend staircases); and the Gnom amphibious robot (neutralizes mines under water, sees up to 110 yards, and can do underwater reconnaissance).⁵⁸⁵

An exercise was carried out in the Southern Military District where engineering detachments cleared agricultural areas of mines using two new Uran-6 robots. The self-propelled unit can carry up to five separate clearance devices.⁵⁸⁶ At the Armed Forces engineer troop training center near Moscow, not only the Uran-6, but also the Uran-14, known as the firefighter robot, were being tested. The Uran-14 has a tank capacity of 2,000 liters and can be connected to an external water source. Its range is 50 meters.⁵⁸⁷

In recent field tests in the Astrakhan region, machine-gun wielding battle robots took center stage. Mobile and stationary robotic systems were explored, to include remote-controlled means of stealth technology and signaling. Each robot weighs 900 kb, has a speed of up

⁵⁸⁵ Tatyana Rusakova, "Automatons with Epaulettes: Russia's New Generation of Military Robots," *Russia Beyond the Headlines*, at

http://rbth.co/2015/01/22/automatons_with_epaulettes_russias_new_generation_

⁵⁸⁶ *Interfax-AVN Online*, 16 January 2015.

⁵⁸⁷ Unattributed report, "Remote-Control Robotic Systems Are Being Tested in the Armed Forces Engineer Troops Training Center in Moscow Oblast," *Ministry of Defense of the Russian Federation Website*, 12 September 2014.

to 45 kilometers per hour, and can function up to 10 hours at a time. It can remain operational in the standby mode for up to a week.⁵⁸⁸

The goal of such exercises is to ensure that Russian specialists learn how to operate effectively in an unsafe environment with minimal risk to a person. This is particularly relevant for fire fighters, emergency rescue personnel, reconnaissance or police units, and those involved in decontamination operations. *In the future there may not be a need for soldiers on a battlefield.* Meanwhile intense research is underway to provide systems that can prevent the robotics base components from being neutralized or jammed.⁵⁸⁹

Specialists participating in the exercise included the following:

- Main Directorate for Scientific Research Activities and Technological Tracking of Advanced Technologies of the Ministry of Defense
- The Main Scientific Research and Testing Center for Robotic Equipment of the MOD
- The Directorate of the Chief of Engineering Troops of the Armed Forces
- The Open Joint-Stock Company 766 Directorate of Manufacturing and Technological Integration
- The Central Scientific Research and Testing Institute of MOD's Engineering Troops
- The Training Center of MOD's Engineering Troops.⁵⁹⁰

⁵⁸⁸ Unattributed report, *The Moscow Times Online* (in English), 2 January 2015.

⁵⁸⁹ Anatolii Yermolin, Aleksandr Kurennoy, and Aleksey Naryshkin interview with Igor Denisov and Oleg Martyanov, on "Arsenal," *Ekho Moskvy Online (Echo Moscow Online)*, 1 September 2014.

⁵⁹⁰ Unattributed report, "Issues Involving the Creation and Use of an Air Mobile Group of Robotic Engineering Systems Practiced at Moscow Suburban Chkalovskiy Airport," *Ministry of Defense of the Russian Federation Website*, 29 October 2014.

Colonel Sergey Khripunov, Chief of the Defense Ministry's Scientific Research Test Center of Robot Technology for Combat Application and Information, stated that combat robots would participate in the Red Square parade in Moscow celebrating the 70th victory anniversary over fascism in World War II. He noted that about 20 wheeled and tracked vehicles with armament will take part. The Defense Ministry is still discussing a host of ethical questions regarding robots, such as whether they (or their operators) can be held accountable for killing people and whether they can cooperate within a group and help others seek cover or evacuate damaged robots.⁵⁹¹

One report noted that the development of robotics is caught up in the traditional trouble within Russia, its bureaucracy and corruption. At times, foreign equipment is blindly copied, such as a Russian sapper robot that was copied from a US model. Another problem is the continued purchase of Western components, which makes production easier and less expensive. As a result domestic projects suffer as talented employees in Russia depart for private firms abroad. Russia's Advanced Research Foundation needs protection from these issues if it is to function properly.⁵⁹²

2015

There were numerous robotic exercises conducted in the various service branches in 2015. To highlight the number of robots under development, they are placed in **bold** lettering in the analysis for easy identification.

In the Navy a **Platforma-M** robotic system helped repulse an attack of enemy frogmen attempting to seize a ballistic missile submarine.⁵⁹³ The Navy is also testing a robot underwater vehicle, the

⁵⁹¹ Unattributed report, "Combat Robots Will Take Part in Victory Parade on Red Square," *Rossiyskaya Gazeta Online (Russian News Online)*, 25 November 2014.

⁵⁹² Unattributed report, "How the Russian Military Will Equip the Army with Robotics in the Next Few Years," *Barnaul AMI-Tsentr*, 9 November 2014.

⁵⁹³ Unattributed report, "News of the Day (Novosti Dnya)," *Zvezda TV (Star TV)*, 19 January 2015.

unmanned **Marlin**. It will help ensure the safety of divers at depths of up to 300 meters. Both warships and rescue ships will use it.⁵⁹⁴

For the Army, President Putin was shown a **humanoid battle robot**. It did not get a good write-up, with one paper stating the robot carries no visible weapon, can only move at a crawl, and is dumb.⁵⁹⁵ But not all is lost. The **Uran-14** firefighting robot, developed by the 766 Production and Technological Outfitting Directorate, closely resembles the **Uran-6** multifunctional mine clearing vehicle. The Uran-14 can be controlled remotely up to 3 km away and can follow the Uran-6 through minefields. It can deliver a continuous jet of water up to 50 m with a 2,000 liter tank capacity. It also has infrared equipment to see behind walls. The vehicle weighs 14,000 kg and has a maximum speed of 12 km/hr.⁵⁹⁶

The Army's **Nerekhta robotic system** can provide fire support for rifle units, and provide reconnaissance data. It can carry up to 700 kg and, in effect, is a truck. Presently it is armed with the Kalashnikov PKTM machine gun or the Kord machine gun. Fire control still needs to be better organized, the weapons magazine needs to be larger, and it must be possible to reload it by remote-control. The vehicle's running performance, its protection capability, and its power plant all need work as well to keep it safe and silent. The vehicle has the ability to work in temperatures ranging from -50 to +50 degrees Celsius; and can withstand impacts and vibrations of up to 10-g loads.⁵⁹⁷

It was reported that the *Konstruktorskoye Byuro Mashinostroyeniya* (Mechanical Engineering Design Bureau) was beginning to equip robots with the Ataka antitank system and with the Iгла-S system from the Strelets launcher modules. Robots are being

⁵⁹⁴ Unattributed report, *Zvezda TV (Star TV)*, 16 February 2015.

⁵⁹⁵ Unattributed report, *The Moscow Times Online* (in English), 21 January 2015.

⁵⁹⁶ Victor Khudoleyev, "Firefighter Uran," *Krasnaya Zvezda Online (Red Star Online)*, 6 March 2015.

⁵⁹⁷ Unattributed report, *Rossiya 24 (Russia 24) TV*, 28 March 2015.

developed to protect and defend intercontinental ballistic missile silos⁵⁹⁸ and, as noted, to fight fires. In the latter case, not only the Uran-14, but also specially fitted T-72 and T-80 tanks are used in this role, able to shoot a 100-meter jet of water.⁵⁹⁹

In May, just before the huge 70th anniversary celebration of the end of World War II, there was a report on the Russian **Terminator** robotic, known as the **Uran** in Russia. It can conduct reconnaissance or engage armored vehicles at maximum range. No number designation was affixed to this particular Uran as was to the above mentioned Uran-6 and -14, although a later report noted that the **Uran-9** was a remote-controlled robot system that consists of reconnaissance and fire support robots. They can be armed with a 30-mm cannon or a 7.62 machine gun and anti-tank missiles, depending on the mission.⁶⁰⁰ The Uran-9 can be used for local army, anti-terrorist, or urban operations. The robots have laser exposure warning and target detection systems, and identification and tracking systems.⁶⁰¹ Here we are talking about robots supporting the action of the land force on the battlefield (operating not only alone, but also as subunits), since robots have no fear, can set up and wait for days in ambush positions, and are easier to fix than a human if blown up. Several prototypes were unveiled at the Army 2015 technology forum.⁶⁰² Another report noted that Uran has Ataka guided weapon complexes, has a remotely controlled range of 1 km, and can hit targets moving at speeds of up to 400 km/hr at low altitude.⁶⁰³

Speaking of land battlefields, the United Instrument-Making Corporation is making a tracked, robotic platform for combat, firefighting, and Arctic expeditions. The **URP01G platform** can work in

⁵⁹⁸ TASS, 14 April 2015.

⁵⁹⁹ Unattributed report, "Russian Army Adopts New Firefighting Tank," *Vzglyad Online (View Online)*, 25 May 2015.

⁶⁰⁰ *Interfax-AVN Online*, 30 December 2015.

⁶⁰¹ *Interfax* (in English), 30 December 2015.

⁶⁰² *Rossiya 24 (Russia 24) TV*, 14 May 2015.

⁶⁰³ Ilya Shchegolev, "Digest: Russia's Combat Robots," *Rossiyskaya Gazeta Online (Russian News Online)*, 18 May 2015.

mountainous conditions too. It can carry two tons of payload and travel at speeds of up to 40 km/hr.⁶⁰⁴ In another article about combat robots, three systems were singled out: the **Platforma-M** complex, the **Strelok**, and the **MRK-27-BT**.

The **Platforma-M**, briefly mentioned earlier in relation to its naval application, can also be used as a tracked, remotely controlled platform. It can carry a payload of up to 300 kg, which could include four Kornet antitank missile complexes or AGS-30 automatic grenade launchers. When used as a scout, it can be installed with a Fara radar, thermal imager, rangefinder, and video camera. It has a top speed of 12 km/hr and can move for 10 continuous hours. First deliveries are planned for 2018.⁶⁰⁵ One report noted that it is located at brigade combat level.⁶⁰⁶

The **Strelok** is a miniature robot and is used extensively in urban environments. It can climb stairs, travel through door openings, and has potential counterterrorist use. It can be remotely controlled from up to 20 km away on open terrain and up to 5 km under urban conditions. It can be mounted with a machine gun and several cameras for daytime and nighttime observation.⁶⁰⁷

The **MRK-27-BT** is armed with two AGS-30 grenade launchers, two Shmel flamethrowers, a Pecheneg machine gun, and up to ten smoke grenades. All weapons on the vehicle can be taken off and used by attacking troops. Special tracks on the vehicle enable it to have increased traction and minimized recoil during firing. It has a remote-control range of nearly 500 m.⁶⁰⁸

⁶⁰⁴ Unattributed report, "Russia to Create Combat Robot for the Arctic," *Rossiyskaya Gazeta Online (Russian News Online)*, 12 May 2015.

⁶⁰⁵ Shchegolev.

⁶⁰⁶ Oleg Falichev, "Soldiers to Order; Military Robots Being Rid of Outside Elements," *Voyenno-Promyshlenny Kuryer Online (Military-Industrial Courier Online)*, 3 June 2015.

⁶⁰⁷ Ibid.

⁶⁰⁸ Ibid.

Perhaps the biggest surprise has been the unmanned robot version of the new tank, the **Armata**. Freeing up space on the tank's internal configuration due to robotization allows for more ammunition and fuel to be carried. It is estimated that this will increase the vehicles range by 50 percent.⁶⁰⁹

Russia's Main Scientific-Research Robotics Test Center is part of the Russian Federation's Defense Ministry and the Main Directorate for Scientific Research and Technological Support for Advanced Technology. It works with the Bauman Moscow State Technical University, the Moscow Aviation Institute, and an interagency working group of the Military Industrial Commission. The robots it tests conduct aerial reconnaissance, detect enemy facilities, adjust artillery fire, contain systems for radiation and chemical reconnaissance, allow for the transportation of radioactive objects, conduct medical evacuation, and issue targeting data to weapons.

Robotic systems include UAVs, a ground robot controlling the equipment, and a sensor system. **Geoskan 200, Fregat, and Forpost UAVs** take TV pictures and process them in a three-dimensional model. They can also suppress enemy information. The **Korshun** heavy attack UAV has a payload of one ton (two 500-kg bombs with laser guidance) and a flight range of 900 km. The **Varyag** robot system can carry up to 10 kg and the **Vepr** up to 50 kg, while the **Verkholaz** operates on train tracks and can move up to 300 kg. The **MRK-VT1 Vystrel** mobile robotic system can work with explosives or volatile items, has a variable geometry tracked inlet, a cryogenic installation with liquid nitrogen, and a remote control console. The **Tral Patrol 4.0** robot has cameras all around making it a security protection platform or patrol site. The **Shatun** remote-controlled robot has off-road capability. It can cross water obstacles, and it can move overland as well. It has a 7.62 PKT machine gun, thermal imager, and laser rangefinder. Software makes it possible to determine target coordinates. The system can accommodate

⁶⁰⁹ Anton Valagin, "The 'Armata' Tank Will Become a Robot," *Rossiyskaya Gazeta Online (Russian News Online)*, 31 May 2015.

RPG-26 grenade launchers or RShG-2 manual assault grenades. Finally, the **Sanitar** robot locates causalities on the battlefield and evacuates them from the zone of fire. Imported components remain the robot's Achilles' heel.⁶¹⁰

There is now talk of the further refinement of the **android combat robot**. This research is taking place under the guidance of the Advanced Research Foundation (see section below). The robot is being taught to run and negotiate an obstacle course, and it will be used in especially difficult conditions via remote control.⁶¹¹ A recent article noted the important future role that electronic warfare (EW) would play in thwarting an enemy's robotic system. As a result it was noted that "We should build our hardware with a war against a serious psychological enemy in mind. *If one deploys the most basic electronic warfare machine we ever had, then not a single American UAV will be able to fly.*"⁶¹² Further, "the first thing to do in this situation is just to jam the transmitters, and that's it. It all grinds to a halt. If our hardware has a brain inside, then it cannot be jammed."⁶¹³

In July 2015 it was announced that the Sitemprom Concern was working on a **universal robotized platform**. It is projected that the platform could be transformed into a combat robot, a mine-clearing vehicle, or an electronic-warfare system. In short, the vehicle will be transformed into whatever its creator wants. The vehicle is 3.5 meters long and about 2 meters wide. It could weigh up to seven tons. Factory trials are to begin at the end of 2015.⁶¹⁴ Also in July there was an interesting article that described once again the upcoming ethical questions that must be answered when contemplating the use of robotic

⁶¹⁰ Falichev.

⁶¹¹ Unattributed report, "FPI: A Combat Android Being Developed in the Russian Federation Will Learn to Run by the End of the Year," *Ministry of Defense of the Russian Federation Online*, 8 June 2015.

⁶¹² *Center TV*, 19 February 2015.

⁶¹³ *Ibid.*

⁶¹⁴ Unattributed report, "A Combat Transformer Robot Has Been Developed in Russia," *Rossiyskaya Gazeta Online (Russian News Online)*, 30 July 2015.

weapons. Will the desire to escape responsibility for killing of one's own kind reduce the political costs to start a war? A suggestion was made to have certain individuals fully answerable for the action of military robots. Awareness of the "inevitable responsibility" for humans may make it possible to somewhat limit the use of robots.⁶¹⁵

In August there was a report of a universal armored robotic platform. It can reportedly be used under battlefield conditions, in nuclear fallout areas or extreme polar Arctic conditions, and in mine sweeping activities. The platform, known as the **URP-01G**, can weigh up to 7 tons. It can carry up to 2 tons of hardware, with a maximum speed of 40 km/h.⁶¹⁶

A key September report was the need to develop robots for assault formations, especially when attacking units in built-up areas. The Ground Troop Field Manual states that "a company should attack a platoon strongpoint on a 500-meter front in a formation of three motorized rifles platoons and a tank platoon."⁶¹⁷ This will involve three tanks and 10 infantry fighting vehicles (IFV). An attack formation that uses robots will have three echelons. The first is composed of six remote-controlled combat robots with mine clearing and reconnaissance gear. The second has three tanks and three IFVs, and the third has seven IFVs. Thus the actual human based attack force remains three tanks and ten IFVs, or 13 combat vehicles. The first echelon of robots can be controlled from a distance of 13 kilometers and, according to Russian calculations, a robotized company's firepower is seven times greater than

⁶¹⁵ Nikolay Epple, "Killer Robots," *Vedomosti Online (The Record Online)*, 30 July 2015.

⁶¹⁶ Unattributed report, "Russia Develops 7-Ton Universal Armored Robotic Platform," *RT Online (Russia Today Online)*, at 2 August 2015, <https://www.rt.com/news/311372-universal-battle-robotic-platform>.

⁶¹⁷ Leonid Orlenko, "Breakthrough Robots," *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 23 September 2015.

a normal company.⁶¹⁸ Both T-72 and T-90 tanks are being equipped with remote control features.⁶¹⁹

There were three other September announcements. First, the Advanced Research Foundation has reportedly developed a competition to create **artificial muscle** for robotized devices. Second, the “**Avatar**” anthropomorphic robot project is under development to, by year’s end, tackle an obstacle course and learn to drive vehicles.⁶²⁰ Third, a report stated that the Navy Military Rescue Personnel and Diving Specialists Training Center has begun training for **underwater-robot** operators.⁶²¹

In October the United Instrument Manufacturing Corporation announced technology that simultaneously operates “up to ten robots in the automatic regime so that they act on a battlefield either individually or in a group.”⁶²² There was an extended debate during the month among lawmakers, who discussed the possibility of giving robots a legal status. Wars in the near future will be between autonomous robots able to combine in groups and units, according to Vyacheslav Pshikhopov, director of the Southern Federal University Research Institute of Robotics and Control Processes. However, Russian legislation to regulate this sphere is unable to keep up with technical progress. Vyacheslav Khalitov, deputy general director for special equipment at the Uralvagonzavod Corporation, said “It is necessary right now to consider such legal issues as the use of robotic systems in peacekeeping operations. When evaluating the appropriateness of their use in various armed conflicts, from the point of view of international law it is essential

⁶¹⁸ Ibid.

⁶¹⁹ Ibid., and “Uralvagonzavod Plans to Combine its Robotized T-90s into a Single Network,” *TASS*, 14 October 2015.

⁶²⁰ Unattributed report, “Advanced Research Foundation Announces Competition to Create Artificial Muscle for Robots. Total Prize Money of Competition is 6 Million Rubles,” *TASS*, 2 September 2015.

⁶²¹ Unattributed report, “Underwater-Robot Operators Now Being Trained in Crimea,” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 2 September 2015.

⁶²² *Interfax* (in English), 19 October 2015.

to put national identification markings on the robots. Turkey still cannot determine whose drone they shot down.”⁶²³

“Now we are approaching the point where robotic systems are moving from being objects to being legal persons,” Yevgeniy Starozhuk, pro-rector of the Bauman University for Economics and Innovation, explained. “The introduction of elements of artificial intelligence in combat systems raises a controversial question: when does property become a legal person? Of course, it is still early to amend the Civil Code, but it is worth thinking about.”⁶²⁴

On 19 October there was a report about an artificial intelligence software package known as **Unicum** (Latin for “the only one”) that can reportedly power a group of up to 10 robotic complexes. It can even distribute roles among the robots, such as choosing a commander, and request replacements for disabled machines. The Unicum software can allegedly be installed on any robotic system, in the air or on land and sea.⁶²⁵

In November and December several systems were discussed. In November *Interfax* reported that the United Instrument Manufacturing Corporation was developing an artificial intelligence solution so that robots could possess computer vision. They can use drone data to detect ambushes and adjust routes. The **quadricycle** (four robotic complexes) mounted robot can find its way even when it loses its GLONASS signal. This project is only in the research stage.⁶²⁶ In December it was reported that an **RTK-05 Berloga-R** remote-controlled radiation reconnaissance robot has been designed at the Central Research and Experimental Design Institute of Robotics and Technical Cybernetics in Saint

⁶²³ Gennadiy Melnik, “Robots Have Long Served in the Russian Army,” *Parlamentskaya Gazeta Online (Parliament News Online)*, 29 October 2015.

⁶²⁴ *Ibid.*

⁶²⁵ Unattributed report, “Russian ‘Skynet’ to Lead Military Robots on the Battlefield,” *RT Online (Russian Today Online)*, 19 October 2015, at <https://www.rt.com/news/319082-russian-military-artificial-intelligence>

⁶²⁶ *Interfax* (in English), 30 November 2015.

Petersburg. It conducts radiation and chemical reconnaissance. The system consists of a mobile land vehicle that is equipped with a manipulator, television system, reconnaissance apparatus, remote control console, radio command system, data collection and processing unit, software, battery charger, and spare parts.⁶²⁷

Another December 2015 report focused on what the Russian press termed “flying combat robots,” or remote controlled cyber weapons. The article described development trends of modern weapons and suggested that a future war would not only be between machines but between robots. To this end the author attempted to describe design concepts for **remote-controlled cyber weapons (cruise warheads)**. The main advantages of such weaponry included rapid delivery with maximum accuracy; the rational use of subsonic winged flying vehicles; the ability to overcome any counteractions from adversary systems; the means to bypass surveillance zones and engagement areas; and the ability of nonnuclear weapons to destroy strategically important facilities. It was noted that this type of weaponry also would be effective for deterrence, warning, and preemption and retribution purposes.⁶²⁸ As the author noted:

The remote control of cruise warheads in adjustable trajectories from some kind of center is not inconceivable. This is a more remote prospect, however. Cruise warheads are evidently the prototype of future weapons. They will perform strategic-level combat tasks at intercontinental distances from the point of launch and are essentially flying robots. The high-precision delivery of a charge to the destruction objective via adaptable

⁶²⁷ Viktor Khudoleyev, “Berloga for Chemical Reconnaissance,” *Krasnaya Zvezda online (Red Star Online)*, 14 December 2015.

⁶²⁸ Grigoriy Vokin, “Remote Custodian. Warheads with Artificial Intelligence Could Be Used for Reconnaissance, Guaranteed Destruction of Targets, and Human Rescue,” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 10 November 2015.

aeroballistic flight trajectories is ensured with the aid of highly intelligent control systems.⁶²⁹

Finally, there was a report from the *Military-Industrial Courier Online* worthy of note. On 23 December 2015 the website discussed the “**Udar**” robotic complex, which means “strike.” The system was placed on the BMP-3, and its electronic units are located within the combat vehicle’s body. Currently under development are control, movement, and video-image algorithms, with special emphasis on the use of this robotic complex on unfamiliar terrain. The robot is being constructed, through intelligent control algorithms, to identify obstacles and how to get around them. An internal inertial system provides for adjustments according to satellite signals. Adjustments can be made to satellite navigation means as well, such as by using visual processing of the terrain (identify and compare objects with what is stored in the system’s memory). Three types of machines must be installed on the Udar: reconnaissance/strike, engineer support, and transportation/evacuation. The control system under development will enable the control of not just one but many robots able to perform several types of tasks.⁶³⁰

A Special 2015 Report on Robots

In December 2014 Russia’s Ministry of Defense approved “The Development of Future Robot Technology to the Year 2025.” The report predicted that the percentage of robots in the overall force structure would be approximately 30 percent by that year. Such an optimistic report was based on several developments in 2014. For example, in the spring the Joint Stock Company “*Izhevskiy radiozavod*” reported on the **MRK-002-BG-57** mobile robot-technology (MRK) complex. The one-ton tracked armored vehicle reportedly can be controlled at a distance of five kilometers and can work autonomously for up to ten hours at speeds approaching 35 km/h. The MRK is equipped with a laser rangefinder, thermal imager, ballistic computer, a “Kord” heavy machine gun,

⁶²⁹ Ibid.

⁶³⁰ Aleksey Ramm, “‘Udar,’ Another ‘Udar,’” *Voyenno-Promyshlennyy Curyer Online (Military-Industrial Courier Online)*, 23 December 2015.

Kalashnikov tank machine gun, and a heavy 30mm automatic grenade launcher. It will provide fire support to infantry subunits and reconnaissance.⁶³¹

In 2015 the Russian Army introduced the first **underground robot-scouts**, the **1K144** robotized multi-monitoring system from the “*Sozvezdie*” Company. This small robot (up to 20 cm in height, with a weight of only 150-600 grams) creeps underground, practically under the enemy’s legs. It can determine the quantity of equipment and their types, and it can transmit the coordinates and direction of target movement.⁶³²

The “*Servosila*” Company is producing the “*Inzhener*” mobile robot, which weighs 23 kg and is equipped “by hand” to capture targets (no further explanation was offered as to what this meant). The *Inshener* reportedly can climb stairs and lift a camera to a height of 130 cm. On the robot is a stereovision system, a laser scanner for three-dimensional scanning of objects and locations, a GPS/GLONASS system, and an inertial system. The “*Inzhener*” can be transported by one man in a rucksack. The intent is to use the robot where conditions are such that it could be potentially dangerous for the use of humans. **Robot-soldiers** are also under construction. Their functional capabilities should be comparable to those of a human. Of course, the robot’s movement is still far from perfect, but it is hoped that the finished robot should be able to fight like or even better than a human.⁶³³

The Russian Navy is testing **underwater robot-sappers and robot-scouts**. These robots light up the sea bottom and sketch a three-dimensional picture of the area, such as ports or regions in the open sea. They are equipped with an autopilot, navigation system, sonar, a manipulator, and other devices. The robot-scouts are used to detect a

⁶³¹ A. Chepur, “Prospects for the Rearmament of the Russian Army,” *Armeiskii sbornik (Army Journal)*, March 2015, pp. 13-18.

⁶³² Ibid.

⁶³³ Ibid.

dangerous object and the robot-sappers are called in to destroy it. These systems reportedly have not yet gone into production.⁶³⁴

At year end, the Defense Ministry reported that in February 2016 it would host the first military-scientific conference on “Robotization of the Russian Federation Armed Forces.” Members of the Armed Forces, the Military-Industrial Commission, law-enforcement agencies, the Russian Academy of Sciences, and scientific research organizations, among others, will attend. It is planned to hold the conference on a regular basis.⁶³⁵

The Advanced Research Foundation

Founded in 2012, the Advanced Research Foundation is the Russian equivalent of the US’s Defense Advanced Research Projects Agency (DARPA). Even though it has only been in existence a few years, the foundation is now responsible for up to 45 futuristic projects, some of which are:

- Developing telepathic contact between man and machine (allows operators to control drones or even quadcopters, using only the biopotential of their brain)
- Creating an android and putting a person in a state of hypobiosis (temporary artificial death)
- Testing a robotic system for its ability to guard or defend intercontinental ballistic missile launch silos
- Creating a combat robot based on a Tiger armored vehicle and equipped with a Kornet antitank missile system
- Developing a prototype high-speed wireless communication channel

⁶³⁴ Ibid.

⁶³⁵ Unattributed report, *Ministry of Defense of the Russian Federation Website*, 29 December 2015.

- Developing technology for optical memory that offers unlimited data storage time.⁶³⁶

Vitaliy Davydov, the Assistant General Director of the Advanced Research Foundation, identified a methodology for choosing projects. First, threats deemed critical to the country's defense and security are determined. Then, ways and means to counter them are identified, and research and development avenues are determined. Scientific-technical and technical-economic reviews are made of the application for each project, and the foundation's science and technology council then decides whether a project should proceed or not.⁶³⁷ Projects identified in the report as undergoing research included high-precision inertial systems, soldier gear (Ratnik system), advanced sniper systems, optoelectronic devices, hypersonic systems, the quick deployment of "swarming" small spacecraft, and problems associated with information countermeasures (means to ensure the stability of the Internet and social networks, based on lessons learned from the Ukraine crisis).⁶³⁸

Of particular interest was Davydov's focus on robots. He noted that conference participants requested the creation of a single robotics center to coordinate developers' efforts in this regard. The hope is to "*reach the point where an operator controls an 'avatar' with his thoughts, exactly as we give a command to our hands or eyes.*"⁶³⁹ In this way, a single operator could control a platoon of robots on the battlefield.⁶⁴⁰

In an *Interfax* report in October 2014, Davydov stated that

⁶³⁶ Unattributed report, "Military Android, Other Secret Developments of the Russian Federation's Armed Forces," *Ekspert Online (Expert Online)*, 16 October 2014.

⁶³⁷ Interview with Vitaliy Davydov, "Vitaliy Davydov Says 'We are Decreasing the Need for a Person's Presence on the Battlefield by Leaps and Bounds,'" *VPK.Name (Voyenno-Promyshlennyy Komplex or Military-Industrial Complex Online)*, 22 October 2014.

⁶³⁸ *Ibid.*

⁶³⁹ *Ibid.*

⁶⁴⁰ *Ibid.*

- In future military conflicts, it will be more practical to use 3D printers to produce weapons, equipment, spare parts, and ammunition right on the battlefield
- Robots will replace humans on future battlefields
- Russia's oil rigs and its transport network in the Arctic will use underwater robots for protection
- Proposals for self-guided "smart bullets" are being collected.⁶⁴¹

The Advanced Research Foundation is also creating a unified control system to provide for shared use of the Gerbariya platform, an integrated engineering software platform. A sample of the Gerbariya will appear by the end of 2016, *RIA Novosti* was informed on Tuesday. The hope is that the development will improve the internal interaction among defense industry enterprises and boost their efficiency. Information systems "with different architectures which correlate poorly"⁶⁴² can currently be used at a single enterprise. Various products create a need to transfer data from one software environment to another, which more often than not entails a loss of information and time. The Gerbariya platform will relieve the defense sector from these kinds of difficulties. A single software platform acts as a portal with access to two categories of users: developers and consumers.⁶⁴³

A military equivalent of the Advanced Research Foundation would probably be the Defense Ministry's Advanced Inter-Branch Research and Special Projects Directorate, headed by Colonel Sergey Pankov. The directorate was established in January 2005 when the 13th and 16th directorates of the Armed Forces were merged. In November 2013 it received its official emblem, a red heraldry shield with several items in the center: a silver depiction of a glowing grenade, an anchor,

⁶⁴¹ *Interfax-AVN Online*, 21 October 2014.

⁶⁴² Unattributed report, "Single Platform Being Created to Unify Software in Russian Defense Sector," *RIA Novosti (RIA News)*, 7 April 2015.

⁶⁴³ *Ibid.*

wings on a mace, and a diagonally crisscrossed scroll and barrel of a gun. The image has an oval shaped wreath around it.⁶⁴⁴

The directorate views the US and NATO as striving to achieve global domination in the military-technological sphere. This requires three countermeasures from Russia, namely (1) imparting new qualities to weapon systems and building up troop groupings along the Western and Southwestern Axes and the Arctic in order to counter the US's strategy of encirclement; (2) developing weapons based on new physical principles (crewless weapons, hypersonic weapons, special equipment); and (3) conducting basic research in support of defense and security issues with specific initiatives from organizations such as the Advanced Research Foundation, the Russian Academy of Science, and other higher educational institutions to counter the US's scientific-technological breakthroughs and to help neutralize any surprises. The directorate supports asymmetric and nontraditional responses to an opponent's technological surprises.⁶⁴⁵

In addition, the directorate develops a scientific-technical reserve to support models of fundamentally new weapons; purchases and repairs EW equipment, military measurement equipment, and robot systems and complexes; develops the electronic component base for weapons and equipment; organizes research in the force structure sphere and develops weapons systems and fulfills special projects; and develops nontraditional weapons, such as lasers and microwave, precision-guided kinetic, nonlethal, and hypersonic weapons. Research has been conducted in the special technical chemistry sphere, where new-generation thermobaric compounds (used in Balaban heavy flamethrower systems, for example), modular propellant charges, fire resistant alloys, composite ceramic armor, tungsten carbide, metal-

⁶⁴⁴ Sergey Pankov, "The Directorate is Ten Years Old. From New Materials to Tests of Models of Advanced Weapons," *Federalnyy Spravochnik (Federal Reference Book)*, 26 May 2015.

⁶⁴⁵ Ibid.

polymer composites, and many other items were obtained and certified.⁶⁴⁶

The overall goal is to introduce systems based on the achievements of the **sixth technological revolution**, which includes bio- and nano-, cognitive, and information technologies. The **Air Force** wants hypersonic operational cruise missiles and reconnaissance-strike complexes with UAVs of long flight duration. The **Aerospace Defense Forces** want laser complexes for destroying space and airborne targets. The **Strategic Deterrence Forces** want airborne laser complexes for the thermodynamic destruction of targets, as well as aero ballistic hypersonic cruise missiles with a multi modular warhead. The **Navy** wants hypersonic sea-launched cruise missiles and unmanned submersibles, as well as long-range ship-based electrodynamic launchers. The **Ground Forces** require multifunctional combat root complexes and reconnaissance complexes with medium- and short-range UAVs. Finally, innovative technical solutions include robots with artificial intelligence, to include micro-, bio-like, and bio-hybrid complexes, as well as nontraditional power sources and intellectual information management systems.⁶⁴⁷

Science Companies

Information on science companies is somewhat sketchy and therefore hard to put together as a complete picture with regard to number of companies, their location and manning, and their specialties. What is discussed below is far from a complete picture of these companies but rather what was available online.

⁶⁴⁶ Ibid.

⁶⁴⁷ Ibid. Also, see 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. The two developments at this conference with respect to information were the improvement of information warfare forces and resources; and the introduction of the sixth technological advances in equipment, which will signal the move to fully intellectual models that implement the concept of "cognicentric" warfare.

These companies are comprised of soldiers who are guided in their research by the specific branch (aerospace, medical, cyber, etc.) to which they are assigned. They perform these duties as a soldier in the Armed Forces in conjunction with their duty with an actual unit. In this way, Russia is using the creativity of new soldiers who are very talented in specific engineering, mathematical, or other topics deemed worth of study. Simultaneously these soldiers can learn from the scientists who are still present and hopefully bypass some of the time wasting errors that were made in the past.

The “science companies” (SC) project began in Russia on 5 July 2013, according to *Interfax-AVN*. These Russian servicemen are involved with solving scientific tasks at least 50 percent of their time in the military.⁶⁴⁸ A 10 July 2013 report noted that initially four science companies were to be formed. They would be stationed in Moscow, St. Petersburg, and Voronezh. In St. Petersburg, the location will be at the Kuznetsov Naval Academy (SC 1); in Voronezh, at the Zhukovskiy Air Force Academy (SC 2); in November 2014 (see below) an Aerospace Defense Troop SC was established and referred to as SC 3, located at the Krasnogorskiy Zverev factory (with optical and electro-optical instrumentation specialties), and SC 4 appears, according to reports, to have been established for the General Staff but no location was specified. Perhaps a SC was established at the Bauman State Engineering University,⁶⁴⁹ due to its engineering expertise, although a November 2014 report (see below) discussed the requirement to develop an engineering company.

Another report stated that the *companies would focus on studying strike UAVs, new types of fuel, the development of weapons based on new physical principles, and the improvement of hypersonic warheads.*⁶⁵⁰ However, the only real description of a science company

⁶⁴⁸ Unattributed report, “The Realization of the ‘Scientific Companies’ Project Begins on Friday,” *Interfax-AVN Online*, 4 July 2013.

⁶⁴⁹ See assorted *RIA Novosti* reports from Moscow, 10 July 2013.

⁶⁵⁰ *RIA Novosti (RIA News)*, at

http://ria.ru/defense_safety/20130710/948764579.html#ixzz2Ye3Pb82J

was the Air Force SC located in Voronezh (SC 2). It was noted that the focus would be on improving automated command-and-control systems for aviation equipment, such as EW, software modeling complexes of aircraft flight, computational-experimental research into increasing airship engine effectiveness, and evaluating military airships fitness for flight.⁶⁵¹

The development of four science companies was intended to improve the effectiveness of scientific work, since more demands are being imposed on the soundness of scientific recommendations as warfare develops. These companies offer young, talented graduates of higher educational establishments a place to work and resolve scientific tasks for the Defense Ministry.⁶⁵² Russia's military leadership has noted that the State Armaments Program is aimed at transforming the military. To do so, and to equip the Armed Forces with modern gear, the science companies were formed in order to attract expertise from among a new generation of scientists.

In February 2014 it was stated that by the end of the year six science companies would be developed (another report stated that ten would be formed). Two such companies that appeared to be under consideration for development were a medical science subunit (SC 5) and a humanities-focused company (SC 6).⁶⁵³ Another report stated that an additional science company would be added in 2015.⁶⁵⁴ In a March 2014 report, Defense Minister Shoygu stated that four science companies had been set up at that time, one each for the Air Force, Aerospace Defense Troops, Navy, and the General Staff.

⁶⁵¹ *Interfax-AVN Online*, 30 July-1 August 2013.

⁶⁵² Gennadiy Miranovich, "Defense of the Country: Scientific Approach," *Krasnaya Zvezda Online (Red Star Online)*, 31 January 2014.

⁶⁵³ Yuriy Gavrilov, "Students Will Be Given a Choice. The Army Will Have Medical Science and Humanitarian Science Companies," *Rossiyskaya Gazeta Online (Russian News Online)*, 10 February 2014.

⁶⁵⁴ Unattributed report, "The Number of Science Companies in the Russian Federation Armed Forces Will Be Increased to 11," *ITAR-TASS*, 25 February 2014.

An 18 July 2014 report stated that it must be taken into account the new science companies are being formed, based at the “Ground Troops Military Training and Research Center” (the Combined-Arms Academy of the RF AF, which would be SC 7) and at the Military Medical Academy imeni Kirov (already noted above as SC 5).⁶⁵⁵ Another July 2014 report discussed the activities of the 820th State Center for Missile Attack Warning, referred to as an “orbital” science unit. However, the ensuing discussion did not mention this location specifically as a SC but rather as part of a discussion of the composition of a SC in general. So this might or might not be SC 8 (although a 31 July 2015 report stated that there were presently eight science companies). Soldiers at this and other locations have submitted numerous applications for patents on inventions. Competition for spots at the locations is intense, with more than three applicants for each spot. Some 60 soldiers serve in each science company, with ages ranging from 18 to 27. They are required to serve 12 months, but they do not participate in field exercises; rather they concentrate on scientific operations in labs and computer centers.⁶⁵⁶

An example of the work of one soldier was described in the 18 July article noted above. Corporal Aleksandr Voyevodskiy was serving in the Aerospace Defense Troops. His scientific activity centered on developing hyperspectral imaging equipment to resolve tasks involved in signature exploration for aerospace troops. He also is investigating the Earth’s resources for Roskosmos, the Russian Federal Space Agency. He eventually proposed an experimental model of a new aviation hyperspectrometer. Another soldier-researcher investigated ways to increase the efficiency of the Okno opto-electronic system, used for space research (with an emphasis on aerospace, most likely SC 3 at the Zverev Factory). The article also stated that a science company was being formed based on the Troops Military Training and Research

⁶⁵⁵ Anna Potekhina, “Science Company Wages Combat,” *Krasnaya Zvezda Online (Red Star Online)*, 18 July 2014.

⁶⁵⁶ Yuriy Gavrilov, “Number of Parameters on Conscript’s Card to Be Trebled,” *Rossiyskaya Gazeta Online (Russian News Online)*, 10 July 2014.

Center. The author ended by noting that “we can very soon expect new discoveries by the cyber soldiers waging scientific combat.”⁶⁵⁷

Each August the science companies participate in what is called the Russian Federation Defense Ministry’s Innovation Day exhibition. In 2014 two soldiers received awards for their innovative technological developments. In November 2014, two SC’s were discussed. The first was a report that the Defense Ministry is working on the creation of an Engineering Troops SC. However, no further information on this unit has been found.⁶⁵⁸ The second report on a SC was in an interview with Aerospace Defense Troop Commander Lieutenant-General Aleksandr Golovko, where it was noted that the first call-up for the VKO troop’s science company was held in the fall of 2013. It was noted in the same article that several servicemen in the Aerospace Defense Troops 3rd Science Company wanted to continue to serve under contract,⁶⁵⁹ which solidifies the fact that this is SC 3.

In December 2014 it was noted that the Defense Ministry now is planning to open schools for gifted children at military educational institutes. The first will be located in Voronezh at the School of Engineering that is affiliated with the Air Force Academy. Other schools for gifted children are planned for affiliation with the Academy of Communications in St. Petersburg (an information technology school will open there) and the Military University in Moscow (which will house a humanities-oriented school).⁶⁶⁰

⁶⁵⁷ Anna Potekhina, “Science Company Wages Combat,” *Krasnaya Zvezda Online (Red Star Online)*, 18 July 2014.

⁶⁵⁸ Anatoliy Yermolin interview with Colonel Ivan Vorobyev, on the *Ekho Moskvy* show “Military Council,” *Ekho Moskvy Online (Echo Moscow Online)*, 8 November 2014.

⁶⁵⁹ Anna Potekhina, “1 December—Aerospace Defense Troops Formation Day: A Space Grouping from the Arctic to Crimea,” *Krasnaya Zvezda Online (Red Star Online)*, 29 November 2014.

⁶⁶⁰ Aleksandr Stepanov, “The Defense Ministry Will Open Schools for Gifted Children at Military Higher Educational Institutions,” *MK Online (Moscow Komsomolets Online)*, 11 December 2014.

In April 2015 a report stated that a ninth SC had been formed in Tambov, and that it appears to be a cyber-science/EW company. Students will be taught how to wage computer wars, erect barriers against Internet attacks, prevent attacks on classified networks, and impede an adversary's troop command and control and weapon use. The article noted that the Tambov Company may serve as a building block for Russian cyber troops, whose potential development was announced back in 2013. The company will develop programmers, mathematicians, cryptographers, EW officers, and communications experts.⁶⁶¹ Another report on the science company stated that the new subunit will make it possible to boost the efficacy of applied-science research and testing in the EW sphere and the training of specialists, and will help in developing data protection methods. The report noted that three science companies are supporting the National Defense Management Center in Moscow, and the other six are supporting the combat arms.⁶⁶² It was never specifically noted which SCs were supporting the national defense center in the article.

On 16 June 2015 it was announced that servicemen of the science companies would receive their own emblem. It is to be worn above the flap of the right pocket and combines an epaulet, sword, scroll, and wreath. The epaulet "signifies the training of junior specialists, the sword symbolizes readiness to defend the homeland, the scroll symbolizes the high level of knowledge, and the wreath symbolizes allegiance to military and official duty."⁶⁶³

In November 2015 Defense Minister Shoygu announced the creation of two more science companies. Both companies (which would

⁶⁶¹ Aleksandr Stepanov, "Defense Ministry Announces Recruitment for Science Troop. Students Will be Put under Cyber Arms," *MK Online (Moscow Komsomolets Online)*, 6 April 2015.

⁶⁶² Anton Valagin, "The Ninth Company Will Become an Electronic One," *Rossiyskaya Gazeta Online (Russian News Online)*, 26 January 2015.

⁶⁶³ Anton Valagin, "Russia's Scientific Companies Received an Emblem," *Rossiyskaya Gazeta Online (Russian News Online)*, 16 June 2015.

be SC 10 and 11) were to be made up of cyber programmers.⁶⁶⁴ They will work for the National Defense Control Center.⁶⁶⁵ And finally, in December, it was noted that a SC with 71 service personnel was created as part of the Material and Technical Supply Military Academy (SC 12) “with a view to carrying out specific applied scientific tasks in the field of the military-economic substantiation of the development and functioning of the system of material and technical provisioning for the Russian Federation Armed Forces.”⁶⁶⁶ Perhaps this is the SC first mentioned in July 2015 in an interview with General of the Army and Deputy Defense Minister Dmitriy Bulgakov, who noted in response to a question of whether there will be a logistics SC that “We will be constituting one such subunit this coming fall. The company will be stationed in Saint Petersburg on the site of the General of the Army A.V. Khrulev Military Academy for Logistics.”⁶⁶⁷ While it is clear that the order of the naming of these science companies is not consistent, this appears to be the best one can surmise on what is offered in open sources.

2014 Military Doctrine of the Russian Federation

Russia’s 2014 military doctrine contained a few references to either the character of military conflicts or the weaponry to be used. They were described as “features of present-day military conflicts” but these features appear to be applicable for several years to come. The following were listed as the characteristics and features of present-day military conflicts:

⁶⁶⁴ TASS, 19 November 2015.

⁶⁶⁵ Unattributed report, “Defense Minister Army General Sergey Shoygu Participated in the Work of the First Interdepartmental Conference on Information Interaction,” *Ministry of Defense of the Russian Federation Website*, 19 November 2015.

⁶⁶⁶ Interview with General of the Army Dmitriy Bulgakov, by Oleg Falichev; place and date not given, “All the Conditions for Carrying out Tasks in Syria Have Been Created. From 2016 Defense Industry Complex Enterprises Will Have an Individual Code and Materiel Will Have Readable Identification Marks,” *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 16 December 2016.

⁶⁶⁷ Viktor Khudoleyev, Interview with Dmitry Bulgakov, “MTO System: In Step with the Times,” *Krasnaya Zvezda Online (Red Star Online)*, 31 July 2015.

- a. Integrated use of military force and of political, economic, informational, and other nonmilitary measures being realized with wide use of the protest potential of the population and of special operations forces;
- b. Massive use of systems of arms and military equipment, precision and hypersonic weapons, means of electronic warfare, weapons based on new physical principles comparable to nuclear weapons in effectiveness, information management systems, as well as unmanned aerial vehicles, self-contained marine vehicles, and controlled robotized models of arms and military equipment;
- c. Simultaneous effect on the enemy to the full depth of his territory in global information space, in aerospace, on land, and at sea;
- d. Selectiveness and high degree of destruction of targets; swiftness of maneuver of troops (forces) and fire; use of various mobile groupings of troops (forces);
- e. Reduction of time parameters of preparation for military operations;
- f. Strengthening of centralization and automation of command and control and fire control as a result of transition from a strictly vertical command and control system to a global network of automated command and control and fire control systems;
- g. Establishment of a permanent zone of military operations on territories of opposing sides;
- h. Participation of irregular armed force elements and private military companies in military operations;
- i. Use of indirect and asymmetric methods of operations;

- j. Use of political forces and public movements financed and controlled from outside.⁶⁶⁸

In another area of the doctrine the tasks for outfitting the Armed Forces with military and special equipment noted the following requirement:

Creation of new models of precision weapons and means of combating them; means of aerospace defense; communications, reconnaissance, command and control, and electronic warfare systems; complexes of unmanned aerial vehicles; robotized attack complexes; state-of-the-art transport aviation; and servicemen's individual protection systems.⁶⁶⁹

The 2014 Doctrine is similar in many respects to the 2010 Doctrine. The latter listed the following as high technology devices that may be used in future military conflicts: precision weaponry, electromagnetic weapons, lasers, infrasound weaponry, computer-controlled systems, drones, and robotized models of arms and military equipment.⁶⁷⁰ Thus not much changed in the intervening four years.

Future War

General of the Army Makhmut Akhmetovich Gareev, a former Deputy Chief of the General Staff of the Soviet Union's Armed Forces and currently the President of the Academy of Military Sciences, is one of Russia's greatest living military theoreticians. He has often written or lectured on the topic of future war. An indicator of his contemporary importance, even though he is in his 90s, is that at the recent 70th anniversary parade glorifying Soviet achievements in World War II, he

⁶⁶⁸ Section 15, "Military Doctrine of the Russian Federation," *President of Russia Website*, 26 December 2014.

⁶⁶⁹ *Ibid.*, Section 46 of the Doctrine.

⁶⁷⁰ See

<http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=40266>.

sat on the reviewing stand between Putin and Kazakh President Nursultan Nazarbayev. Chinese President Xi Jinping sat on the other side of Putin.

Writing in *Military Thought* in 2003, Gareev described what he termed as the evolving characteristics of future war. He stated that Russia should

- Be ready to fight local wars and armed conflicts and, under certain circumstances, a regional war
- Focus on the initial period of war, since a war's beginning now may decide its outcome
- Be ready to use and confront indirect actions as much as direct actions, due to the enhanced nature of the information struggle, which can subvert nations from within
- Focus on the air and space theater of war, as it is capable of striking deep inside a nation and hitting all targets simultaneously (nevertheless Gareev also warned not to forget the importance of land forces)
- Work to achieve control and coordination over all elements of its armed force
- Realize that high-precision weapons change the nature of hostilities to a great extent
- Place special attention on the antiterrorist struggle.⁶⁷¹

Most of these items, especially the importance of the initial period of war and indirect operations, are still stressed by prominent writers on military activities today.

Gareev was writing shortly after the US intervention in Iraq, a war that reinforced, as Desert Storm had initially demonstrated, the

⁶⁷¹ M. A. Gareev, "On Several Characteristic Aspects of Future War," *Voennaya Mysl'* (*Military Thought*), No. 6, June 2003, pp. 52-59.

ability of new precision technologies to completely overwhelm an opponent. With regard to forecasting future war, Gareev noted:

The main problem is to forecast the nature of future wars since correct forecasts alone can help determine which armed forces and which troops will be required. It is not enough to merely outline the nature of a typical war; there are many types of armed conflicts each of them with unique features of its own. It is within the power of military futurologists to use extrapolation and expert-heuristic approaches combined with forecasting and simulation of all sorts of warfare to identify the general trends in which the nature of armed struggle is developing. One should always bear in mind that there are objective laws according to which the art of warfare is developing; and that each war while producing many new elements inevitably preserves much from the past, what occurred in past conflicts.⁶⁷²

Gareev's focus on forecasting the nature of future war and his observation that there are many types of armed conflicts today are reflected in the works of several contemporary theorists. In 2009, Lieutenant General S. A. Bogdanov and Colonel V. N. Gorbunov wrote a lengthy article in *Voennaya Mysl'* (*Military Thought*) that identified future war trends. First, the authors stated that the requirements of military science still need to be fulfilled, reiterating Gareev's statement. These requirements include identifying the conditions and factors affecting warfare and the patterns and laws governing war's origins, course, and outcome. A potential opponent's political aims, military potential, and the specifics of a theater of operations all influence the general character of future war. Time has not affected the importance of these characteristics.⁶⁷³

⁶⁷² Ibid., p. 54.

⁶⁷³ 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.

Second, the authors believe that the exact character of future war is still not known since a new world order and security system model have not been completed. There is still an ongoing fight for spheres of influence, regional domination, and natural resources. This imprecise character of future war includes the unknown final impact of information technologies on warfare.⁶⁷⁴ These technologies continue to inspire a new generation of weapons and ways they can be utilized. Finally, future war also depends on a nation's economic and military potential, on its international position and the popularity of its policies, and on its plans for future war. These factors are still undergoing development and change.

Some factors, however, have become identifiable to Bogdanov and Gorbunov. They listed six:

- Wars will use more artificial intelligence, nanotechnology, robot-controlled, and new physical principle weapons, some comparable to the efficiency of nuclear weapons.
- The role of troops, forces, and weapons operating in aerospace will grow significantly, where even the planet may be a theater of operations.
- The information component of war will grow in weight, where information superiority will become a principal condition for successful military operations.
- Time frames of operations will change, with preparation time shortened and operations carried out faster.
- Mobile operations will shift from rigid vertical control to automated global network systems that control troops and weapons.
- The use of Special Forces will rise.⁶⁷⁵

⁶⁷⁴ Ibid.

⁶⁷⁵ Ibid., pp. 5-6.

There are few surprises in this list. The author's stress on multi-dimensional actions involving electronic, physical, and information warfare is expected in future struggles as is an increase in intensity over time and space. However, it is the non-military forms of armed struggle that the authors stress below that are of special interest. These forms of warfare may result in some armed forces conducting no operational actions at all or playing a secondary role.

Non-military forms of actions may involve the internal weakening of a state through information, psychological, moral, climatic (causing natural disasters, obstructing the movement of troops through floods and other means, dispersing clouds to inhibit/enable [depending on the purpose] the proper functioning of precision-guided weapons, etc.), and organizational measures; setting up an opposition; or fomenting ethnic strife. Non-military forms of armed struggle could also be used to weaken the external position of a state by ruining its international relations through political, economic, legal, information, and other means.⁶⁷⁶ Other new forms of warfare include psychotronic, biological, and genetic weapons that do not rely on explosive power.⁶⁷⁷

Bogdanov and Gorbunov note that "future wars will definitely be influenced by the way events develop in a country...a reliable forecast of future wars is impossible to make unless we have a profound understanding about the exact relationship between peace and war in the twenty-first century."⁶⁷⁸ Wars in the twenty-first century may be the result of geopolitical powers carving up the globalized world by armed force and compelling countries to accept political and economic terms dictated to them. Most likely, "the main objectives of future wars will be achieved in the opening phase and that will become the turning point determining the fate of the war."⁶⁷⁹ Thus, like Gareev, Dulnev, and

⁶⁷⁶ Ibid., p. 8.

⁶⁷⁷ Ibid., p. 7.

⁶⁷⁸ Ibid., p. 8.

⁶⁷⁹ Ibid., p. 13.

Bryuzgin, Bogdanov and Gorbunov highlight success in the initial period of war as the strongest indicator of who will achieve victory in future war.

If a conventional war unfolds, then the authors foresee the initial period of war focusing on 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. Air, fire, and electronic attacks will be followed by paratroopers, Special Forces, and then land forces in the final stage. Also included will be strikes against the economy and civilian population. The nuclear deterrent is envisioned to be used against an opponent who only has conventional weapons at their disposal.⁶⁸⁰

“Technosphere Warfare” by Yu. I. Starodubtsev, V. V. Bukharin, and S. S. Semyonov was one of the earliest post-2011 articles that, from a Russian perspective, offered an approach to warfare that differed from network-centric and information war. This was termed warfare in the “technosphere.” The authors stated that “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.”⁶⁸¹

Technospheric warfare (TSW) is “a system of information activities coordinated in purpose, place, and time and directed at seizing control (partial or complete) over an adversary’s selected automated control systems or setting them on a destructive course while they go on operating.”⁶⁸² With regard to conflict, TSW is

⁶⁸⁰ Ibid., pp. 13-14.

⁶⁸¹ Yu. I. Starodubtsev, V. V. Bukharin, and S. S. Semyonov, “Technosphere Warfare,” *Voennaya Mysl’ (Military Thought)*, No. 7 2012, pp. 22-31.

⁶⁸² Ibid.

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.⁶⁸³

The authors stated that, different from traditional information and network-centric warfare, 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.⁶⁸⁴ Modeling results indicate that TSW's distinctions include the use of an artificial medium to conduct war without troops on any scale without declaring it as a legal fact. Only the uncertainty of attack results is a technospheric law. State borders and frontlines no longer apply, and people without military training can plan operations.⁶⁸⁵ While these notions are certainly not new to digital specialists, it is interesting to see them written up in such detail in a military journal.

In late February 2013 Russia's Chief of the General Staff Valery Gerasimov wrote an article for the *Military-Industrial Courier*. He stated that in the 21st century wars are not even declared, but, once begun, are following different patterns than those to which we are accustomed. Trouble-free states can be transformed within a month into hot conflict zones and even can be a victims of foreign intervention. These conflicts are now comparable in their consequences to actual wars. The role of nonmilitary methods (now surpassing military actions by a 4:1 ratio) in achieving political and strategic goals has risen, altering the rules of war. This is taking place with the involvement of the population's protest

⁶⁸³ Ibid.

⁶⁸⁴ Ibid.

⁶⁸⁵ Ibid.

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.⁶⁸⁶

Other areas influencing modern methods of war include robotic military systems and artificial intelligence research. UAVs and flying or walking robots will crowd future battlefields. Aerospace missions must be finalized and the system of command-and-control of territorial defense must be fine-tuned. Finally, a dismissive approach to nonstandard approaches is impermissible and foreign experiences must not be copied. Each war requires an understanding of its own particular unique character.⁶⁸⁷

Gerasimov's focus on the nature of armed struggle repeated many of the topics that Russian military authors had covered in the intervening years. For example, the following articles were published in the well-known Russian journal, *Military Thought*, from 2009-2012:

- 3/2009, pp. 2-15: S. G. Chekinov and S. A. Bogdanov, "Armed Confrontation in the 21st Century"
- 5/2009, pp. 2-12: V. I. Lutovinov, "Development and Use of Nonmilitary Measures to Reinforce the Military Security of the Russian Federation"
- 3/2010, pp. 13-22: S. G. Chekinov and S. A. Bogdanov, "Asymmetrical Actions to Maintain Russia's Military Security"
- 6/2011, pp. 3-13: S. G. Chekinov and S. A. Bogdanov, "Strategy of the Indirect Approach: Its Impact on Modern Warfare" (earlier, in 9/2006, pp. 2-5, I. N.

⁶⁸⁶ 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.

⁶⁸⁷ Ibid.

Vorobyov and V. A. Kiselev published “The New Strategy of the Indirect Approach”)

- 11/2012, pp. 14-27: S. G. Chekinov and S. A. Bogdanov, “The Initial Period of War and its Influence on the Preparation of the Country for Future Wars”
- 11/2012, pp. 40-46: S. V. Kuralenko, “Tendencies in the Changing Character of Armed Struggles in Military Conflicts in the First Half of the 21st Century”

After Gerasimov’s article, there continued to be distinct write-ups in *Military Thought* on the nature and content of future war. For example, the following articles have appeared from 2013-2015:

- 10/2013, pp. 13-24: S. G. Chekinov and S. A. Bogdanov, “The Nature and Content of a New-Generation War”
- 9/2014, pp. 3-11: A. N. Belsky and O. V. Klimenko, “Political Engineering of Color Revolutions: Ways to Keep Them in Check”
- 1/2015, pp. 32-43: S. G. Chekinov and S. A. Bogdanov, “The Art of War in the Early 21st Century: Issues and Opinions”
- 10/2015, pp. 41-49: S. G. Chekinov and S. A. Bogdanov, “Forecasting the Nature and Content of Future Wars: Problems and Opinions”

Several of the articles from the 2009 time frame were the first article in the edition, indicating their importance, and the others were close to the top of each edition. Thus, the importance of these concepts was obvious to all in Russia, but perhaps not to foreign analysts: very few foreign analysts focused on indirect and asymmetric operations, but rather instead stressed hybrid operations. In fact Russia accuses the West of using hybrid operations against them. No Russian military officer has indicated that Russia is using hybrid operations.

In addition to Gerasimov's article in 2013, two other noteworthy military articles appeared within a month in the Russian press. First, there was a *Courier* article in March written by V. M. Burenok on the weapon systems of the future. Second, Gareev wrote in the *Courier* on the connections between war and military science.⁶⁸⁸ Just the title of Gareev's article, "Every Era Has Its Own Kind of Military Conflict, Its Own Constraints, and Its Own Special Biases," indicated he was repeating what Gerasimov had stated earlier. These articles, plus Gerasimov's, considered the character of future war and "how" it would look. They described future war's foundation as built on high-technology weaponry, indirect and nonmilitary operations, and specific ways of employing joint forces.

A Look at Some Recent Articles

Andrei Baklanov, writing in 2013 in *Russia in Military Affairs*, stated that the future rivalry among nations would be for "spaces." This includes control over northern high latitudes, space militarization, and the seas and continental shelves. This rivalry is being shaped by the development of international legal mechanisms. Interestingly, the development of technologies has jump-started this rivalry and is enabling the large-scale development of these spaces. If "bridgeheads" (technical, technological, financial, legal) are not settled soon, conflict could begin to emerge as early as 2018-2020, according to this author.⁶⁸⁹

In a June 2014 report Russian scientists discussed a number of discoveries made in the past several years that are now reaching the point of practical application. Many can be used in future situations, including:

- Direct-flow hypersonic jet engines and flight management systems

⁶⁸⁸ Makhmut 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 (Military-Industrial Courier)*, 5 June 2013.

⁶⁸⁹ Andrei Baklanov, "A War of the Future," *Russia in Global Affairs*, Vol. 11, No. 4, October-December 2013, p. 131.

- 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-array antennas based on radio photon elements
- Zonal rapidly deployed active and passive hydro-acoustic systems for interpreting underwater situational awareness
- Means of conducting information wars (particularly in cyberspace) and cognitive control.⁶⁹⁰

The report went on to state that new models of nonlethal devices are being developed as well.

Nearly a year after his insightful 2013 article in the *Courier*, Gerasimov spoke at Russia's Academy of Military Science. He stated that the spectrum of tasks before the General Staff was conditioned by the change in the nature of armed struggle. By this he meant the latter's fast-moving character and dynamic employment of military and nonmilitary means coordinated according to time, place, direction, forces, means, and resources. These tasks, in turn, generated the need to prepare a new edition of the *Statue on Military Planning in the Russian Federation*.⁶⁹¹

⁶⁹⁰ 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.

⁶⁹¹ 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

The design of an efficient Armed Force's contingent in Russia depends in large degree on finding an optimal correlation of forces and means of armed struggle, Gerasimov notes. Another important task is the forecasting and assessment of military threats. His mention of the COF and forecasting track nicely with the development of strategic thought as outlined in Chapter Two. Gerasimov added the following:

Special attention must be focused on the creation of a comprehensive theory of indirect and asymmetric actions conducted by various federal executive organs...another task of military science is the development of forms of employing force groupings and methods of their operations, and the determination of their optimal composition.⁶⁹²

With regard to future war, Gerasimov noted that new models of weapons must be created, and robotic systems, a future telecommunications infrastructure, the development of strategic deterrence forces, and an aerospace defense system must be developed. Future weapon systems should be ones that most effectively oppose forecasted threats to Russia's military security. Such Russian weaponry should be found in the State Weapons Program for 2016-2025.⁶⁹³

It is the change in the nature of armed struggle that should affect Russia's future war planning the most. Gerasimov described these changes and, consequently, potential changes in the conduct of future war in the following way:

by the President of the Russian Federation," *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 1 2014, pp. 14-22.

⁶⁹² Ibid.

⁶⁹³ Ibid.

- A reduction of the military–economic potential of a state by the destruction of vitally important objects of its military and civilian infrastructure
- The simultaneous effects against enemy troops and objectives to the entire depth of his territory
- The conduct of an armed struggle simultaneously in all physical media and in the information domain
- The command and control of forces and means in a uniform information domain
- The mass employment of precision weapons, large-scale use of special operations forces, robotic systems, UAVs, and weapons based on new physical principles
- The employment of asymmetric and indirect operations
- The commencement of military operations by peacetime force groupings
- The high-maneuver, noncontact combat operations by interservice force groupings
- The participation of the civil-military component.⁶⁹⁴

Gerasimov noted that the forms and methods of armed struggle are being studied by the General Staff’s Center for Military and Strategic Studies; that there are 27 central science and research institutions looking at command, control, and communications systems; and that there are 46 central science and research institutions examining the development of weapon systems. Additionally, 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.⁶⁹⁵ Thus it should be expected that Russia is working on many asymmetric approaches, as well as on counters to those systems already in existence in the West.

⁶⁹⁴ Ibid.

⁶⁹⁵ Ibid.

In 2015 the future war discussion continued. Some familiar authors reappeared, while several new individuals also wrote on the topic. However, the dialogue on the nature of armed struggle remained quite similar in all cases.

The first issue of *Military Thought* in 2015 carried another article by Chekinov and Bogdanov, “The Art of War in the Early 21st Century: Issues and Opinions.” They noted that political and military strategic objectives of conflicts are achieved not only by direct military interference, but also via legal, psychological, spiritual and moral, economic, diplomatic, ideological, and large-scale information impact on the public and armed forces of an adversary. Interestingly, indirect actions are said to include not only nonmilitary measures but also nonviolent actions such as the use of information and remote (noncontact) confrontation.⁶⁹⁶

Many of the issues Chekinov and Bogdanov covered in 2014 were restated. For example, they stated that the content of combat operations will be altered as well by modernized aerospace weapons, weapons based on new physical principles, robotized technology, automated command and control and armaments, artificial intelligence, reconnaissance and fire operations, and specialized counter-intelligence operations. Of interest was that, while discussing the continued utility of old methods that must not be forgotten when applying future war thought, the issue of surprise was highlighted. The authors noted 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.”⁶⁹⁷

⁶⁹⁶ S. G. Chekinov and S. A. Bogdanov, “The Art of War at the Beginning of the 21st Century: Issues and Opinions,” *Voennaya Mysl’ (Military Thought)*, Vol. 1 2015, pp. 32-43.

⁶⁹⁷ *Ibid.*

These nonmilitary measures and indirect methods of fighting have the capability to change the definitions of the terms “war” and “armed struggle.” Military art will interact with these nonmilitary and indirect actions. Meanwhile, military strategy will continue to define the likely nature of wars and work out the tasks that need to be fulfilled.⁶⁹⁸

The first issue of the *Journal of the Academy of Military Science* in 2015 also contained an article that described changes in the nature of armed conflict in the first part of the 21st century. The factors that have the most influence were listed as follows:

- The change in the essence and content of armed conflicts
- The dependence of the course and outcome of armed struggle on other types of struggle in military conflict—political, informational, psychological, etc.
- The informatization of military affairs, bringing the development of 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 will make it possible to implement destructive factors that are not manifested earlier on a massive scale
- The shift of efforts to the cosmic (space) sphere, with the goal of achieving a guaranteed force superiority over potential enemies.⁶⁹⁹

The opposing sides will inflict damage predominantly on enemy weapons and military equipment instead of enemy personnel. Thus, the

⁶⁹⁸ Ibid.

⁶⁹⁹ P. A. Dul’nev and V. I. Orlyanskiy, “Principal Changes in the Nature of Armed Struggle in the First Third of the 21st Century,” *Vestnik Akademii Voennykh Nauk (Bulletin of the Academy of Military Science)*, No. 1 2015, pp. 44-51.

course and outcome of armed struggle will rely more and more on the ability of the opposing sides to regenerate weapons and military equipment created on the basis of the latest technologies. This will require the implementation of sets of nontraditional measures to support armed struggles (timely creation of reserves of different information resources, etc.).⁷⁰⁰

Support rendered to an operation (combat), such as operational (tactical) camouflage (misleading the enemy), the psychological struggle, and moral-psychological support, will substantially increase. Various types of weapons will be required. Achieving this goal “depends on a substantial increase in the effectiveness of information effects on humans.” The enemy must be forestalled in resolving tasks.⁷⁰¹

The scale of employing more qualitative and principally newer weapons will increase. Troops will be equipped, in particular, with directed energy weapons and resources to cause software failure, increasing the ability to conduct surprise actions. The one-time use of new, substantially more effective resources will lead to an increase in troop losses for the opposing sides, perhaps even whole elements of an operational structure. The following trends in the change of the nature of armed struggle must be considered when forecasting: 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.⁷⁰²

There will be an increase in the volume of weapons to control information objectives, 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.”⁷⁰³ Further, the development of space systems will cause a future redistribution of the percentages of traditional

⁷⁰⁰ Ibid.

⁷⁰¹ Ibid.

⁷⁰² Ibid.

⁷⁰³ Ibid.

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.⁷⁰⁴

Finally, developing weapons based on new physical and technological principles will change the percentage contribution of various types of effects (fire, energy, software) when destroying the enemy. This will cause a change in resource dependence for armed struggles. Developing directed energy weapons and software means of destruction enables the reduction of explosives and takes into consideration using items such as explosive magnetic generators.⁷⁰⁵

In another 2015 article Chekinov and Bogdanov discussed the forecasting of future war.⁷⁰⁶ To set the stage for what Russia considers its future war toolbox, the article developed specific charges against the US as to how they conduct operations, noting that the US achieves political and economic goals by threatening the use of force or actually using it. Further, the authors state that the US wants to enlarge NATO toward Russia, and it wants to step up activities in the Arctic. The reason, they add, is that the US views Russia's growing military and economic power as a threat to the US's national security.⁷⁰⁷ Russian President Vladimir Putin was quoted as stating that "we must visualize in full measure the nature and outcome of military strategic processes unfolding in the modern world to clearly realize the kind of potential threats that can affect the situation shaping up around our country."⁷⁰⁸

Forecasting is viewed as an instrument that helps avoid errors in identifying the principal avenues for promoting military art, avoiding

⁷⁰⁴ Ibid.

⁷⁰⁵ Ibid.

⁷⁰⁶ 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.

⁷⁰⁷ Ibid., p. 41.

⁷⁰⁸ Ibid., p. 42.

paths that lead nowhere, and cutting the costs of maintaining military security. It is the job of military science to use such a 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. Even historical figures such as Svechin said you cannot stick to entrenched stereotypes, as such thinking makes it difficult to conduct strategic forecasts of the nature and substance of future wars.⁷⁰⁹ Systematic forecasting can bring out new trends and help formulate verified principles for an adequate strategy

Further, the concept of the term “war” needs to be expanded and this includes future wars in the first place. The role of other types of warfare (economic, ideological, psychological, informational, and so on) will not alter the essence of future war. The essence of future war, usually stated as warfare using arms, will remain,⁷¹⁰ while developments in unconventional arms may be used to cause earthquakes, typhoons, downpours, and other disasters. Weapons for future wars will be designed based on new physical principles. 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 war show that they will be resolved by 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.⁷¹¹

Information war is the start point for every action now called the “new type of warfare (a hybrid war)” in which broad use will be made of

⁷⁰⁹Ibid.

⁷¹⁰ Ibid., p. 43.

⁷¹¹ Ibid., p. 44.

the mass media and computer networks (blogs, social sites, etc.). New information techniques, operating in the nanosecond format, will be the decisive factor for success of military operations. These techniques are based on new technologies that are key components of information weapons. They may paralyze computer systems that control troops and weapons and deprive the enemy of information transmission functions. In fact, computers may turn into a strategic weapon in future wars as a result.⁷¹² Information and psychological warfare will come in all forms and methods, with the goal being to achieve superiority in troop control and to erode the morale and spirits of the enemy.

Future wars will be launched by electronic warfare forces, which will protect friendly forces, block foreign propaganda disinformation, and strike at enemy EW forces and assets. They will blend with strategic operations set off by the armed forces and with aerospace operations, with the latter augmented by cruise missiles, and reconnaissance “outfits (UAVs, robots)” delivering strikes and fires. Long-term forecasts predict that strategic goals will not be achieved in future wars unless information superiority is assured over the enemy. Russia must be on the lookout for a special operation to “misinform and mislead the other side’s military and political leaders,” which will include large-scale measures of new-type wars (hybrid), including actions to influence the behavior of the armed forces of the adversary to instigate internal tensions in society.⁷¹³

Making long-term forecasts of the type and substance of future wars are difficult due to the number of “wars of surprises” that are created. Foresight can be used to preview long-term trends of changes in the geostrategic situation and the evolution of relationships between countries and their effect on the evolution of military art. Forecasts are based on the record of war and armed conflicts.⁷¹⁴ Developing doctrine requires insights into the forms and methods of violent and nonmilitary actions, which are required before reforms, military economies, and

⁷¹²Ibid.

⁷¹³ Ibid., p. 45.

⁷¹⁴ Ibid., p. 43.

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 wars conduct by joint and cross-service task forces and the laws of warfare, and new areas of military art's development.⁷¹⁵

Main distinctions associated with future war include the fact that weapons designed on new technological principles will have an overwhelming superiority. Nuclear weapons will have reduced significance and strategic operations by the armed forces may become the principal form of fulfilling strategic tasks. A unified system will be deployed to collect and process information through the integration of capabilities in real time. Forecasting shows that future wars will have an opening (last about a month) and closing period (which must be as short as possible). Forecasts of the development of the geostrategic situation must be made and the linkages between warfare employing arms and nonviolent and nonmilitary measures assessed.⁷¹⁶

Conclusions

This chapter began with a look at Russian military-technological developments. The Russian military is spending a huge sum of money on scientific research in the hope of attaining information superiority over all opponents by 2025, and much earlier if possible. This research has resulted in several initial developments that indicate Russia is developing some high-technology weaponry that will challenge weaponry in other nations.

While research is being conducted in a host of areas, robotics and weapons based on new physical principles appear to head the list. The development of an Advanced Research Foundation and an Intra-Branch Research Special Projects Directorate has helped to ensure that money is being channeled for the right purposes and in the right way. The development of new science companies indicates that the military is adjusting its focus from considering conscripts as nothing more than

⁷¹⁵ Ibid., p. 48.

⁷¹⁶ Ibid., p. 47.

fodder for the military machine to appreciating the value of smart young minds and their ability to make innovative suggestions for new and better weaponry. While there are currently nine science companies, Defense Minister Shoygu has indicated that he hoped to have 11 companies helping the military by the end of 2015.

When combined with Russia's traditional focus on future war thinking, which takes into account forecasting and the correlation of forces, it appears that President Putin has the military tracking future war developments appropriately according to the Soviet/Russian model. The military is also assessing contemporary affairs and new advances in weaponry, which then offer new methods of conflict. It is doubtful that Russia would be totally surprised by foreign technological developments, as it has the algorithm writers and other forces to foresee the types of technologies under development abroad and what types of weaponry these technologies are creating. Russia has always been blessed with creative thinkers, and this generation appears no less capable than those that preceded it. Mathematical capabilities remain a key attribute of Russia's educational system, and this ability is an extremely topical one in the information age. The impact of algorithm writers on software development is most apparent in the next chapter dealing with Russian cyber assets.

What is unfortunate is that, through his actions in Ukraine, Putin has caused his neighbors to no longer visualize Russia as a friendly state but rather as a threat. Neighbors are rearming and receiving additional guidance and funding from the West, upon whom they have called for assistance. It is doubtful that Putin's forecasting and correlation of forces abilities in the military correctly predicted the fallout from his actions in Crimea and elsewhere. It will take some time to alleviate this situation, especially as Russia rearms and refocuses on threats everywhere it looks, threats that the leadership itself created. Now, whether it be sanctions or the increased military buildup on Russia's borders, the leadership must deal with the consequences of its actions. This complicates thinking about future war and assessments of its changing nature.

CHAPTER SEVEN: RUSSIA'S DIGITAL PROMINENCE

Introduction

In 1947 Mikhail Timofeyevich Kalashnikov developed the AK-47 assault rifle. Today the Kalashnikov Concern has expanded to include unmanned aerial vehicles (UAVs), naval craft, and remote-controlled modules for installation on armored vehicles, among other developments.⁷¹⁷ Although Kalashnikov died in December 2013, his name will remain associated with Russian arms for years to come.

In the digital age in which we now live, there are many excellent software writers and digital experts. Math expertise has always been a Russian strength. There may not be a certain name associated with this expertise as there was with the Kalashnikov, however, since digital geniuses are being replaced one by one. Each generation produces more adept and informed programmers. Today the name Eugene Kaspersky stands above others, but as the age of quantum computing approaches, perhaps he will be superseded by some other scientist. This does not distract from the fact that the current wave of algorithm writers is as important as any of the arms developers in the military-industrial complex. Their software is a key element in much of the new weaponry that delivers ordinance on target or enables the acquisition of commands from faraway places while in flight.

This chapter will detail some of the recent results of Russia's cyber efforts. First, a Russian authored book on cyber and information issues is summarized. It covers the history of digital issues in Russia and thus serves as a start point for examining the recent past. Next, a list of some recent cyber revelations, to include a list of external and internal cyber dangers to Russia, is offered. That is followed by the policy responses of the Kremlin, which include the close integration of effort between the Kremlin and the Federal Security Service (FSB) as a monitor of compliance and intelligence oversight of these policies.

⁷¹⁷ *Rossiia 24 TV (Russian 24 TV)*, 14 June 2015.

Military issues are then examined, which includes a look at the various articles that have appeared in the journal *Military Thought*. The discussion ends with a discussion of the recent Russian and Chinese cyber agreement. What is clear is that Russia continues its efforts to control its domestic and international cyber and information environments. Some of these issues are information-technical and some information-psychological, which continues a tradition in Russian thought as to how to subdivide cyber and information issues. What is unknown is how cyber fits into Russia's concept of the correlation of forces and the initial period of war.

An Important Book on Digital Issues

In 2015 two Russian authors, Andrei Soldatov and Irina Borogan, wrote a book titled *The Red Web: The Struggle between Russia's Digital Dictators and the New Online Revolutionaries*. It offers an excellent summary and background on the development of Russian information and cyber issues over the past century. The authors, who have their own website (Agentura.ru), note that the book is an investigation into what happened in their country when two forces, surveillance and control on one side and freedom on the other, collided over digital issues.⁷¹⁸ *The Red Web* demonstrates how a combination of surveillance, control, mobilization, information, and manipulation are integrated to the benefit of the Kremlin.

Of course, the control of information is not a new phenomenon in Russia. The authors go back to the days of Lenin to explain his successful management of newspapers to organize and mobilize the masses, not inform them, which thereby prevented the population from obtaining an alternative worldview. For this reason, in the days of the Soviet Union, dissidents relied on Samizdat (self-published material) to obtain such viewpoints.⁷¹⁹ Today, control over information has become

⁷¹⁸ Andrei Soldatov and Irina Borogan, *The Red Web: The Struggle between Russia's Digital Dictators and the New Online Revolutionaries*, Public Affairs, New York, 2015, p. x.

⁷¹⁹ *Ibid.*, p. 11.

especially critical for Russia and President Putin, since he believes the US has the technology to enable it to topple political regimes,⁷²⁰ and that Russia might be next on America's list.

On Control

Control over information did not end with the collapse of the Mikhail Gorbachev era, but it was not always the Kremlin that was in command of it. In the mid-1990s Russian oligarchs used news media as weapons to fight for control of the vast resources that Russia possessed. They bought and sold media empires. When the first search engine, Rambler.ru, appeared along with the Internet service provider Cityline and the first blog, the Evening Internet, it became frighteningly clear to the security services that such sources of information had to be controlled.⁷²¹ The oligarchs were controlling more information than the Kremlin and people were accessing information outside the Kremlin's comfort zone.

In 1998 Russia's Federal Security Service (FSB) produced a draft document that made Russia's Internet Service Providers (ISP's) install black boxes on their lines, thereby connecting the ISP with the FSB. The black box system, which furthered control over information, was known as SORM (System of Operative Search Measures) and it became a technical means to investigate electronic networks, or to conduct eavesdropping on the Internet. It was not even mandatory for the FSB to show a warrant to anyone when it made inspections. The ISP owners were forced to pay for the black box and its installation yet they had no access to it.⁷²² There reportedly have been three levels of SORM over time. Soviet KGB telephone tapping was dubbed SORM-1. Internet tapping, to include Skype, was dubbed SORM-2, while SORM-3 included all telecommunications.⁷²³

⁷²⁰ Ibid., p. 124.

⁷²¹ Ibid., pp. 62-63.

⁷²² Ibid., p. 68.

⁷²³ Ibid., p. 70.

In 2008, Russian authorities began to worry over other issues such as search engine Yandex, which began to replace newspapers in popularity in Russia. Yandex offered on its home page five top news items, which attracted younger audiences in particular. It soon became the ninth-largest search engine in the world.⁷²⁴ Yandex made the Kremlin realize that it would need to control not only Russian media but also the wider Russian-speaking Internet. It especially wanted access to how Yandex algorithms were chosen but were unsuccessful in their attempts to do so in 2008.⁷²⁵ Eventually, Yandex was put under investigation (for posting news items each day) and was thus deemed a “kind of media.” Forcing Yandex to register as media made the company subject to Russian media legislation and libel law, and thus it could be closed down⁷²⁶ if the Kremlin so desired.

The focus on Internet sites became so intense because the Kremlin worried about a so-called “color revolution” happening in Russia. When the Arab Spring occurred in 2011, FSB Director Aleksander Bortnikov suggested that a Western conspiracy was afoot and that it could be aimed at starting similar protests in Russia. On 7 June 2012 the Russian State Duma introduced legislation for a nationwide system of filtering on the Internet, including a single register of banned sites, i.e., a blacklist.⁷²⁷ The blacklist would block Internet protocol addresses, sets of numbers, URLs, or domain names the FSB described as harmful. The Federal Agency for Supervision of Communications (Roskomnadzor) maintained the blacklist.⁷²⁸ By March 2014 Russia had four official blacklists of banned websites and pages: those deemed extremist; those that included child pornography and suicide or banned drug discussions; copyright problems; and sites blocked because they called for demonstrations not approved by the authorities (and conducted without a court order). An unofficial fifth

⁷²⁴ Ibid., p. 111.

⁷²⁵ Ibid., p. 114.

⁷²⁶ Ibid., pp. 294-295.

⁷²⁷ Ibid., p. 166.

⁷²⁸ Ibid., p. 196.

blacklist was for those sites or groups deemed to be uncooperative.⁷²⁹ Putin wanted to ensure that the West would never be able to start an uprising like Arab Spring in Russia. In April 2014, he declared that the Internet was a CIA project.⁷³⁰ Authorities clearly feared the Internet might be used to interfere in internal affairs, or undermine sovereignty, national security, territorial integrity, public safety, or be used to divulge information of a sensitive nature.⁷³¹

In May 2014 Putin signed a law to tighten control over online bloggers with more than 3,000 followers. These bloggers had to register with the government, allowing the security services to track them. In May 2015 a new law made it possible to block all kinds of sites if they carried information without signed agreements from authors or rights holders. Thus, any hyperlink to any text or page can result in the blocking of a website.⁷³²

Soldatov and Borogan developed a template through which to understand the Kremlin's approach to media control: Parliament produces a flow of repressive legislation that exploits cracks in previously published rules and regulations; hacktivists and trolls attack and harass liberals online, posing as someone other than a Kremlin supporter; Roskomnadzor is granted the power to censor and filter the Internet; Kremlin-affiliated oligarchs bankroll and take over media companies; specific manufacturers are selected to provide surveillance equipment; and Putin's paranoia of enemies ties these actions together, resulting in threats and intimidation. Putin's system is effective as long as people are certain the Kremlin is in control. This dynamic can be transformed when a crisis occurs and message are shared in real time.⁷³³

On Snowden

⁷²⁹ Ibid., p. 263.

⁷³⁰ Ibid., p. 238.

⁷³¹ Ibid., p. 233.

⁷³² Ibid., pp. 215, 220.

⁷³³ Ibid., pp. 313-314.

Edward Snowden, the authors write, landed in a country with a miserable human rights record. He appealed to investigative journalists for help, but found out after taking risks “to expose information in the interest of freedom of information” that he had landed in a regime that suppressed information.⁷³⁴ His disclosures emboldened Russia to exert more control over the Internet. It meant Russian citizens would be forbidden from keeping personal data on foreign servers, and that digital sovereignty for Russia must be provided.⁷³⁵ Digital sovereignty would force Facebook, Twitter, Google and its services, Gmail and YouTube, to be subject to Russian legislation, and would allow backdoor access to them for the Russian security services. In 2013 new SORM technical guidelines required phone operators and Internet providers to store information for 12 hours at a time until it could be retrieved by the authorities. Correspondence through Gmail, Yahoo, and ICQ instant messaging could be intercepted.⁷³⁶ In short, everything Snowden hoped for had backfired. He was now a prisoner in a land where Internet freedom was tightly controlled well beyond anything he had imagined.

On the Ukraine Intervention and Information

A Facebook post on 21 November 2013 by Mustafa Nayyem, who was disappointed when Ukraine failed to integrate with the EU due to Putin’s pressure, advised people to come to Independence Square, also known as Maidan. Some say this started the revolution in the square.⁷³⁷ Such protests were a seminal crisis for Putin due to his fear of color revolutions. While Ukraine’s information agency UNIAN reported that a cyber-attack had occurred in reaction to events in Maidan, this was not the real problem for protesters. Rather, it was the tidal wave of propaganda that Russia spread on social networks, infiltrating VKontakte first before exploiting the digital pathways for its own purposes. Trolls and disruptive online discussions were unleashed with inflammatory messages.⁷³⁸ Fake news agencies such as ANNA News were registered

⁷³⁴ Ibid., p. 221.

⁷³⁵ Ibid., p. 209.

⁷³⁶ Ibid., pp. 210-211.

⁷³⁷ Ibid., p. 275.

⁷³⁸ Ibid., pp. 279-283.

in places such as Abkhazia, and the agency (presumably ANNA) established a Russian replica of YouTube, known as Rutube. Quasi-news agencies set up accounts on VKontakte, Facebook, Twitter, Google+, and Odnoklassniki. Another faux agency, Novorossia Television, set up social network accounts and posted videos that were picked up by pro-Kremlin TV.⁷³⁹

Putin had invested his personal prestige in Ukrainian President Viktor Yanukovich and when the latter went missing in February 2014 it was a frightening prospect. On 3 March Roskomnadzor quickly blocked 13 pages of groups linked to the Ukrainian protest movement on VKontakte. On 8 March pro-Kremlin activists launched the website *predatel.net*, which means “no traitors,” gathering statements of liberals deemed unpatriotic (Navalny, Nemtsov, Parkhomenko, etc.) and then threatened them.⁷⁴⁰

Conclusion Reached on the Red Web

Thus, in the end, the digital directors of the Kremlin have gotten what they wanted: a reenergized populace sympathetic to Putin’s actions and convinced of Western conspiracies to neuter Russia, resulting in his exceptionally high popularity rating. Meanwhile, small pockets of resistance to this media takeover remain, but their voices are more muted than before. As the authors note, one of the main motivators leading to Russia’s extra control over the media was the revelations of Edward Snowden. He justified his actions by the need to defend the Internet from government intrusion, surrendering countless NSA secrets in the process, only to be a guest in a regime that has been suppressing freedom of information for years.

Some Recent Developments and Case Studies

A New Information Security Doctrine

As Soldatov and Borogan’s book went to press in early 2015, other important cyber developments were underway that have taken us to

⁷³⁹ Ibid., pp. 284-286.

⁷⁴⁰ Ibid., p. 260.

the end of the year. The most significant was probably the statement that in 2016 a new Information Security Doctrine, the first since 2000, would be published. A *Kommersant* article in October discussed the doctrine, noting that it would contain several threat blocks. First, the threat of a potential incursion that would affect critical information infrastructure and the conduct of technical reconnaissance of state bodies. Second, the threat of an adversaries active use of information communication technologies (ICT) (by intelligence services or public organizations) to undermine the sovereignty and territorial integrity of Russia or to destabilize the country's internal political and social situation. This includes the ability to use information's impact to undermine cultural and spiritual values or patriotic traditions. Finally, threats to privacy and the increase in computer crimes were mentioned. No other specific blocks were discussed, but two warnings were provided: don't fall behind in the creation of ICT products; and beware of separate states desires to use technological domination in information space to achieve economic and geopolitical advantages.⁷⁴¹

In addition to the new information security doctrine the press continued to publish cyber issues of all types, to include military, equipment, new threats and so on. As an example of how many cyber issues are being discussed in Russia, consider the following reports from September-December 2015:

15 Sept: Western Military District communication troops repel a hypothetical enemy cyber-attack during joint Russian-Belarussian operational exercise Union-Shield-2015, where computer attacks were blocked and back-up channels were used—wired, satellite, and radio relay. Special encryption equipment (crypto-router and anti-virus software) were also used.⁷⁴²

⁷⁴¹ Unattributed report, *Kommersant (The Businessman)*, 10 October 2015.

⁷⁴² "Western Military District Communication Specialists Repel Hypothetical Enemy Cyber Attack during Union Shield-2015 Exercise," *Ministry of Defense of the Russian Federation Website*, 15 September 2015.

17 Sept: Ukraine's state bodies banned Kaspersky Lab products from their organizations, but Lab products keep working in other market segments of Ukraine.⁷⁴³

24 Sept: Linux-based Operating System Zarya has appeared in Russia's Forces. It is designed to work safely with classified information.⁷⁴⁴

21 October: A Russian report notes that there are no scenarios for disconnecting the Internet inside Russia. Rather the task is to preserve the Russian segment of the Internet.⁷⁴⁵

27 Oct: US officials claim that Russian submarines may damage undersea communication cables; Russia denies this.⁷⁴⁶

10 Nov: A recent Russian military article described design concepts for remote-controlled cyber weapons. It was noted that this type of weaponry also would be effective for deterrence, warning, and preemption and retribution purposes.⁷⁴⁷

19 Nov: Command and control systems of different force structures and units can be integrated into one information space.⁷⁴⁸

19 Nov: Defense Minister Shoygu stated that two science companies of programmers will be set up.⁷⁴⁹ They will be created for the National Defense Control Center.⁷⁵⁰

⁷⁴³ *Interfax* (in English), 17 September 2015.

⁷⁴⁴ *TASS News Agency*, 24 September 2015.

⁷⁴⁵ *Interfax* (in English), 21 October 2015.

⁷⁴⁶ *Interfax* (in English), 27 October 2015.

⁷⁴⁷ Grigoriy Vokin, "Remote Custodian. Warheads with Artificial Intelligence Could Be Used for Reconnaissance, Guaranteed Destruction of Targets, and Human Rescue," *Voyenno-Promyshlennyy Kur'yer Online (Military-Industrial Courier Online)*, 10 November 2015.

⁷⁴⁸ *TASS*, 19 November 2015.

⁷⁴⁹ *TASS*, 19 November 2015.

⁷⁵⁰ "Defense Minister Army General Sergey Shoygu Participated in the Work of the First Interdepartmental Conference on Information Interaction," *Ministry of Defense of the Russian Federation Website*, 19 November 2015.

20 Nov: Russian officials cannot use foreign software next year if a Russian version exists.⁷⁵¹

2 Dec: Russia is developing a computer system to detect, prevent, and eliminate consequences of cyber-attacks against state agencies.⁷⁵²

7 Dec: Russia has opened in the Samara Region its first center to protect local government bodies against cyber-attacks. Objectives are to establish non-stop monitoring of cyber security incidents and develop a quick response if needed.⁷⁵³

13 Dec: An international security system that endorses a code or rules of conduct in the form of soft law is needed according to Russian Prime Minister Dmitry Medvedev.⁷⁵⁴

Russian Cyber Motivation: External and Internal Cyber Dangers

The external threat to Russia was brought home by the data that Edward Snowden provided in 2013. Putin noted in 2014 that cyber espionage is “a direct violation of the state’s sovereignty, an infringement on human rights, and an invasion of privacy.”⁷⁵⁵ The same year he stated that some countries want to attain a domineering position in information space. To deter Russia, those nations “we usually call our colleagues and partners” are using all tools, from political isolation and economic pressure to full scale information warfare, to do so.⁷⁵⁶ Here they can achieve “not just economic, but also military-political goals, and actively apply information systems as a tool of the so-called ‘soft force’ for serving their interests.”⁷⁵⁷ Protecting Russia’s information space against contemporary threats is a national security priority, he

⁷⁵¹ Peter Hobson, no title provided, *The Moscow Times Online* (in English), 20 Nov 2015.

⁷⁵² *Izvestiya Online*, 2 December 2015.

⁷⁵³ *TASS*, 7 December 2015.

⁷⁵⁴ *Interfax* (in English), 13 December 2015.

⁷⁵⁵ *Interfax* (in English), 11 July 2014.

⁷⁵⁶ *Interfax* (in English), 26 March 2015.

⁷⁵⁷ *Interfax* (in English), 1 October 2014.

noted. Control and communication systems are exceptionally important for the nation's defensive capability, as well as its economic and social development.⁷⁵⁸ This makes Russia's antivirus capability, such as the Kaspersky Lab, so important, since it can help protect these vectors. And for this reason Security Council Secretary Nikolai Patrushev has noted that foreign telecommunication hardware and software must be replaced by domestic equipment.⁷⁵⁹

Internally, Putin worries in particular about calls to overthrow existing government systems. He writes:

In defending the freedom of choice, assemblies, demonstrations, and rallies, one should not forget about one's responsibility for one's words and actions. One must know and understand that inciting conflicts among people of various ethnicities and faiths, propaganda of nationalist ideology, and resulting mass violations of public order, and calls for toppling the existing government system are a direct manifestation of anti-national thinking, a direct manifestation of extremism.⁷⁶⁰

Such thinking about the dangers of color revolutions to government systems has definitely spread throughout the security sector in Russia. However, it is not just the West and the US that worry Putin. It is also websites that promote terrorism, extremism, xenophobia, and religious hatred inside the country that must be contained in order to protect Russia's citizens.⁷⁶¹

In response to the external and internal dangers that the Kremlin visualizes, a series of policies to confront or neutralize them were discussed over the past three or four years and only more recently

⁷⁵⁸ Ibid.

⁷⁵⁹ *Interfax* (in English), 2 October 2014.

⁷⁶⁰ *Interfax* (in English), 21 November 2014.

⁷⁶¹ *Interfax* (in English), 1 October 2014.

realized. In several instances below, the examples used represent more lengthy write-ups of issues advanced by Soldatov and Borogan in *The Red Web*.

Case Studies

There have been several countries that have allegedly been attacked by Russian hackers in the past six months that have openly discussed the incidents. There probably are many others that have not been reported. Here we will focus on four, France, Ukraine, Germany, and the US. At this point in the investigations it is unknown if the hackers were state supported or were acting on their own.

France.

In June 2015 France suspected that a group of Russian hackers posed as Islamic State militants and conducted a cyber attack against a TV5Monde, making it look like an attempt to spread terrorist propaganda. The group called itself “CyberCaliphate,” and such an attack made sense in light of the attack over six months ago on Charlie Hebo. However, those investigating the incident think this was an example of misdirection, and that evidence was pointing to APT 28, a Russian hacker group that will be discussed in more detail later in the US section. The IP addresses hosting the CyberCaliphate website matched those used by APT. The Russian government denied involvement in the incidence.⁷⁶²

Germany. In December 2015 *Der Spiegel* magazine (electronic version) discussed a cyber-attack against the Bundestag and other governments in NATO that had taken place in April. Investigators believe that APT 28 was behind this attack and it turned out to be the most serious attack against a constitutional body in Germany. An e-mail contained an address ending in “un.org,” so it did not raise tremendous suspicion. Hackers dug their way to “other places in the network” and had “had

⁷⁶² Sam Schechner, “France Says Russians Carried Out Cyberattack,” *The Wall Street Journal*, 11 June 2015, p. A6.

access to 14 servers of the Parlakom network, including the main server that stores all access data in the Bundestag.”⁷⁶³

Ukraine. Before addressing several late 2015 attacks, it is important to return to the Presidential elections in Kiev in May 2014, for the necessary background. Just 72 hours before the election that potentially would offer a mandate to Ukraine’s population to develop a legitimate pro-Western government, the election headquarters were hacked by a pro-Moscow group known as CyberBerkut. Fortunately operations were restored in time for the elections. CyberBerkut has also attached government documents on its website, and it has hacked the Ministry of Foreign Affairs then the Ministry of Defense, among others. CyberBerkut is allegedly an independent Ukrainian organization. Ukrainian officials, however, strongly suspect Russian involvement with the group. There is little surprise in Ukraine’s weak cyber security system, since it has much Russian technology in its inventory, is infested with Russian supporters, lacks security updates, and hosts much of its e-mail on servers located in Russia. The hacker tools being used against Ukraine are sophisticated, further indicating nation-state sponsorship.⁷⁶⁴ But there is no proof. And that is the same scenario that seems to be repeating itself in 2015.

Russia has been a bit trickier with its use of cyber against Ukraine. One Kiev report noted that there was a scheme to bribe voters with Internet technologies. As the report noted

The cyber technology to remotely bribe voters has for the first time been used at these elections (on 25 October and mayoral runoffs in several big Ukrainian cities on 15 November). It includes several stages. At the first one, people are enticed by having their mobile phones topped

⁷⁶³ Maik Baumgaertner, Sven Roebel, Marcel Rosenback, and Joerg Schindler, “From Moscow Thieves with Love,” *Der Spiegel (The Mirror)* (Electronic Edition), 5 December 2015, p. 33.

⁷⁶⁴ Margaret Coker and Paul Sonne, “Cyberwar’s Hottest Front,” *The Wall Street Journal*, 10 November 2015, pp. A1, A12.

up by 50 hryvnyas (about two dollars). Then those who respond are paid 400 hryvnyas for a photo of a ballot paper with a tick next to the name of an elected candidate.⁷⁶⁵

A member of the Interior Ministry of Ukraine stated that the funding came from Moscow. Law enforcement officials stated that 10,000 people sold their votes at the 25 October election.⁷⁶⁶

In December a report from iSight Partners claimed that it had gotten the malicious code that caused a massive blackout in the Ivano-Frankivsk region of Ukraine leaving hundreds of thousands of homes without power. The size of the blackout was viewed as a milestone in hacking, since in the past such attacks, which are commonplace, never caused such an incident. The country's energy minister blamed Russia for the attack on the power grid and security firm ESET agrees, since malware known as BlackEnergy caused the outage and it is a Trojan that has been used by Russia in previous attacks against Ukrainian targets.⁷⁶⁷ Another report noted that US security agencies were studying malware from the 23 December blackout affecting nearly 700,000 homes for several hours. They had not decided if the hackers acted on behalf of Russia's government or with its implied consent.⁷⁶⁸

US. The FireEye report on APT 28, a Russian group that have running hacker operations since 2007, further indicated that it was sponsored by Moscow. The group targets insider information related to governments, militaries, and security organizations that would likely benefit the Russian government. Actual targets include the Georgian Defense Ministry, Eastern European government organizations, NATO, and other European Security organizations.

⁷⁶⁵ Kiev 1+1 Television, 13 November 2015.

⁷⁶⁶ Ibid.

⁷⁶⁷ See <http://www.cnet.com/news/cyberattack-causes-widespread-power-blackout-in-ukraine>

⁷⁶⁸ See <http://thedailybeast.com/articles/2016/01/06/exclusive-cia-eyes-russian-hackers-in-blackout-attack.html>

Russia. In September *Vedomosti (Record)* discussed coding in general. Various firms were accessed. Kaspersky Lab representative Aleksander Gostev noted that the Lab follows APT 28 and added that its hacker techniques are Russian and the operating system version on which files are created are Russian. Infowatch specialist Natalya Kasperskaya noted that Russian programmers do code slower than Chinese or Indian programmers; and Sergey Golovanov noted that assembly language and C programming is typical for the Moscow Engineering and Physics Institute.

Policy Responses of the Kremlin

In early November 2013 the State Duma Security and Anticorruption Committee recommended the adoption of an amendment to an FSB law that will allow it to conduct police investigations to counter threats to Russia's information security. Earlier such actions were applicable only to state, military, economic, or environmental security threats. The report stated that harmful software, for example, can be used as an information weapon⁷⁶⁹ that could threaten security. On 20 November the *President of Russia* website noted that the president had approved a concept of public security. One provision noted that public security proceeds from an improvement in political, organizational, socio-economic, information, legal, and other measures. Such improvements help counter criminal and other illegal behavior. The means of ensuring public security included hardware, software, linguistic, legal, and organizational resources that collect, process, and transmit information about ways to strengthen public security.⁷⁷⁰ It is unclear if the change to the FSB law and the concept on public security are related.

⁷⁶⁹ Unattributed report, "A State Duma Committee Has Approved Amendments Relating to Information Security," *RIA Novosti Online (RIA News Online)*, 8 November 2013.

⁷⁷⁰ "President of Russia Official Website: Concept of Public Security in the Russian Federation," *President of Russia Website*, 20 November 2013.

In January 2014 a draft “Concept of Strategy of Cyber Security of the Russian Federation” was placed on a government website. The goal of the strategy was to provide for the cyber security of individuals, organizations, and the state in the Russian Federation by defining a system of priorities and measures in the area of internal and external policies. Section one was devoted to the urgency of developing a strategy to confront emerging cyber threats. Section two defined terms on which the strategy must be based (information space, information security, cyberspace, cyber security). Section three examined the place of strategy in the system of existing legislation. It was deemed necessary to remove existing failings, create bases for the process of supporting cyber security, systematize the action of interested parties, and formulate a model of cyber security threats. Section four discussed the goals of the strategy. Section five discussed the principles of the strategy. Section Six discussed the priorities of the strategy in providing for cyber security, including developing a national system for protecting against cyber-attacks and warnings about them; raising the reliability of critical information’s infrastructure; improving measures for providing for the state security of information resources in cyberspace; developing mechanisms for the partnering of the state, business, and civil society in cyber security; developing digital literacy of the citizenry; and increasing international cooperation. Section seven directed activities in support of cyber security. Finally, section eight discussed the development and acceptance of the strategy.⁷⁷¹

In June 2014 the Collective Security Treaty Organization drew up regulations for a center to deter cyber threats.⁷⁷² In July Russia reported the creation of a mobile operating system that can be protected from spyware wiretapping and that prevents data leakage. One batch of this operating system tablet was developed with an impact-proof case for the Defense Ministry (MOD), while the other is more ordinary. Still, it can work underwater and in high temperatures. One aim of the product

⁷⁷¹ “Concept of Strategy of Cyber Security of the Russian Federation,” *Government of the Russian Federation Website*, 10 January 2014.

⁷⁷² *Interfax* (in English), 25 June 2014.

was to make it available for cyber troops, but more work remains to be done.⁷⁷³ In August a law on bloggers, classifying them as mass media, took effect. If a blogger site registers more than 3,000 visits a day, then it should be entered into a special register and allowed to publish advertisements for a fee. Bloggers must check the information they post, comply with election campaign regulations, refrain from disseminating information on citizens private lives, and state age limits for users.⁷⁷⁴ In September, due to sanctions imposed on Russia because of its intervention in Ukraine, Putin stated that Russia must make its own software for defense industry and security agency needs and for civilian communications.⁷⁷⁵ The same month the Russian Telecommunications Ministry said it is not planning to cut off access to the Internet but is preparing a plan in case of external efforts to make that happen. Russia worries, since a large part of its important infrastructure is controlled from outside Russia.⁷⁷⁶ A month later the president stated that there is no need to restrict access to the Internet or take total control of it. However, he added that Internet resources are being used by some countries to exert soft power or military-political influence to achieve their interests.⁷⁷⁷ This must be countered.

In March 2015 Deputy Premier Dmitriy Rogozin gave instructions to create a cybersecurity council, most likely within the Military-Industrial Commission. The group will include representatives of information security system developers, state users of these systems, legislators, and business community representatives.⁷⁷⁸ Speaking at the meeting were representatives of the FSB, Infowatch Company, the Federal Service for Technical and Export Controls, Rosatom, Russian Railways, the Moscow Engineering and Physics Institute, and the

⁷⁷³ *RIA Novosti*, 3 July 2014.

⁷⁷⁴ *Interfax* (in English), 1 August 2014.

⁷⁷⁵ *Interfax* (in English), 19 September 2014.

⁷⁷⁶ *Interfax*, 19 September 2014.

⁷⁷⁷ *RIA Novosti* (in English), 1 October 2014.

⁷⁷⁸ Sergey Goryashko and Yelena Chernenko, "Dmitriy Rogozin Takes Up 'Smart Weapons.' Government to Get Cybersecurity Council," *Kommersant Online (The Businessman Online)*, 11 March 2015.

Russian Center for Policy Studies. The latter's representative, Oleg Demidov, noted that the foundation for Russia's policy in the cyber security sphere should rest on the adoption of the law "On the Security of the Russian Federation's Critical Information Structure," which classifies critically important facilities.⁷⁷⁹

Also in March definitions were offered for social networks and bloggers. A social network was defined as "an online website that provides individuals/users with an opportunity for self-presentation as well as the development of social networks by registering accounts/blogs and their continuing coordination."⁷⁸⁰ A blogger is "an individual who registered an account on a social network or owns an independent blog."⁷⁸¹ In May the Center for Research in Legitimacy and Political Protest, a pro-Kremlin political center, allegedly developed a computer program that trawls social networks looking for opposition plans to Kremlin activities. Russia feels Twitter, Facebook, LiveJournal, and VKontakte, Russia's main social network, contain information that it deems extremist. Monitoring social networks would help warn Russian society about cyber activities and threats they represent to the regime.⁷⁸² Also in May Putin signed an edict that establishes a Russian state segment of the Internet. The draft had been prepared over a year and a half ago. All state structures will be connected to it before 2018. Termed "Gosnet," the segment will help counter threats to Russian information security at the government level. The state segment serves as an intermediate link between the ordinary Internet and state entity resources. A backup root server has been created and is functioning at the Internet Technical Center. By 1 July 2015 official websites of state entities were to be placed on servers in Russia; information was not available as to compliance with this. In addition, companies such as

⁷⁷⁹ Ibid.

⁷⁸⁰ RAPSIS (in English), 13 March 2015.

⁷⁸¹ Ibid.

⁷⁸² Anna Dolgov, no title provided, *The Moscow Times Online* (in English), 19 May 2015.

Twitter and Facebook must store actions of Russian subscribers on Russian servers as well, no later than 1 September 2015.⁷⁸³

In July several cyber actions were addressed in the press. On 14 July Putin stated that he has nothing against voting on the Internet for Russian elections. This would have to be discussed with the Central Electoral Commission and deputies of the State Duma, he added. Having many companies working in the field of electronic data protection shows that Russia has the ability to do this.⁷⁸⁴ In another cyber item, Putin stated that foreign states are using political tools to hamper Russian information technology firms from entering international markets, even though they state that the market is open and beyond politics.⁷⁸⁵ In a *Moscow Times* essay, he was quoted as being in favor of only “minimal” Internet restrictions, noting that “one should not forbid reading, viewing, or listening to something, but we should ourselves promote our position.”⁷⁸⁶ Many in the West realize that promoting Russia’s position has on numerous occasions been performed by so-called Internet trolls, usually employed by companies with ties to the Kremlin.

Intelligence Oversight

To implement many of the arrangements above, eight agencies are reportedly permitted to conduct investigative activities in Russia: the Ministry of Internal Affairs (MVD), the Federal Security Service (FSB), Federal Protective Service, Foreign Intelligence Service (SVR, which of course investigates activities outside Russia), Customs, the Federal Drug Control Service, the Federal Corrections Service, and the MOD’s Intelligence Directorate (GRU). Several of these organizations have expanded their surveillance activities as of 2012. For example, the Federal Corrections Service purchased the System of Operational and Investigative Measures (SORM) equipment, which are packages

⁷⁸³ Unattributed report, “Putin Signs Edict on Establishing State Internet,” *Newsru.com*, 22 May 2015.

⁷⁸⁴ *Rossiia 24 TV (Russia 24 TV)*, 14 July 2015.

⁷⁸⁵ *Interfax*, 14 July 2015.

⁷⁸⁶ Anna Dolgov, no title provided, *The Moscow Times Online* (in English), 15 July 2015.

enabling one to intercept phone and Internet traffic. The law was expanded to include areas where people did community service for crimes instead of being incarcerated. It is nearly possible to wiretap an entire city.⁷⁸⁷ Earlier the Supreme Court had upheld the Right of the FSB to wiretap oppositionists on the ground of engaging in protest activity.⁷⁸⁸ Overall it appears that the goal of increased agency and FSB surveillance of the Internet is designed to highlight pro-Kremlin messaging and limit domestic opposition messaging and thus movements.

In December 2012 Putin tasked the FSB to act systemically and offensively in such directions as providing counterintelligence, protecting strategic infrastructure, and combating economic and cyber space crime.⁷⁸⁹ This requirement was followed in early 2013 with the Presidential Decree, “On Creating the State System to Identify, to Prevent, and to Eliminate the Consequences of Cyber Attacks on the Information Resources of the Russian Federation.”⁷⁹⁰ The FSB was ordered to organize and conduct work related to creating this state system, as well as monitoring its work and cooperating with state bodies; and to prevent and eliminate the consequences of cyber-attacks on Russia’s information resources. Not only does the decree allow for the FSB to determine procedures for protecting cyber information in Russia, but it also allows for exchanging cyber information with foreign governments and international organizations.⁷⁹¹ The latter appears to allow for the exchange of information with computer emergency response teams in other nations.

In December 2013 the FSB received the power to investigate cybercrimes instead of just collecting information on actions threatening national, military, economic and environmental security. The new bill adds information security to the list, due to the growth of “interstate

⁷⁸⁷ Andrey Soldatov and Irina Borogan, “Why Are We Now Being Monitored More?” *Yezhednevnyy Zhurnal (Daily Journal)*, 20 December 2012.

⁷⁸⁸ *Ibid.*, and Soldatov and Borogan in *The Red Web*.

⁷⁸⁹ *Interfax* (in English), 28 December 2012.

⁷⁹⁰ Unattributed report, *base.consultant.ru*, 15 January 2013.

⁷⁹¹ *Ibid.*

information struggles,” where the term “struggle” implies the use of malicious software that can disrupt computer operations or gather sensitive information.⁷⁹²

In early 2014 it was decided to enlist civil society representatives to help. It was announced that the Public Chamber was setting up volunteer online patrols against Internet crime, including extremism, drug sales, the spread of child pornography, etc. A critic of the announcement, Nikolay Svanidze, the director of the Russian State Humanities University Mass Media Institute’s journalism department, noted that the Public Chamber does not have the resources for this kind of work. Even the FSB does not have them.⁷⁹³ In September 2014 a representative of the FSB’s Public Council stated that the council wants more public action in preventing extremist content from being disseminated via the mass media. The representative added that the council was not calling for censorship but rather a reasonable balance between freedom of information and accountability for violating civil rights protected by law.⁷⁹⁴

In mid-March 2015 the FSB was said to establish an integrated system to counter cyber threats. The mandate for the system was the text on the FSB website of the “Concept for a State System for the Detection, Prevention, and Management of Computer Attacks on Russia’s Information Resources.” The system, known as the “National Coordination Center for Computer Incidents,” would organize special centers supporting cyber security. In addition to the FSB, one other executive agency (to be named) would ensure the security of the country’s critical information infrastructure. The network of centers would monitor information systems 24 hours a day and respond to cyber-attacks. If the threat level of the attack is low, it could be put into the hands of the MVD or some other agency. At the moment the report notes

⁷⁹² *Russian Legal Information Agency* (in English), 23 December 2013.

⁷⁹³ Artem Lunkov, “Catching with Worldwide Web. Plans to Involve Active Internet Users in the Fight against Online Crime,” *Novyye Izvestiya Online (New News Online)*, 29 January 2014.

⁷⁹⁴ *Interfax* (in English), 24 September 2014.

that to implement the integration of databases for various agencies is difficult to predict. There is too much competition among the security structures. A recommendation was to develop an analog of the Palantir system used by the CIA, FBI, and NSA for these purposes.⁷⁹⁵

Another source noted that this state system includes a federal executive body that is authorized to ensure the security of Russia's critical information infrastructure and to establish and ensure the system's functionality. The main aims of the system are to ensure Russia's information resources are protected from attacks and to ensure the normal functionality of these resources in the event of attacks. The centers are subdivided into a main system center, regional centers, territorial centers, centers servicing specific Russian government bodies and regional government bodies, and corporate centers.⁷⁹⁶

These developments appear to have greatly diminished the cyber powers of the MVD, whose role in the past had been to investigate cybercrime, hackers, and so on. However, the MVD is hanging on. In early 2014 it had noted that lone criminals were giving way to more organized criminal groups. Each access to computer data seemed to have the ulterior goal of stealing money.⁷⁹⁷ In October 2014 the MVD tendered an order for work on the "Troika" code at a value of over nine billion rubles. The work is connected "with handling data that constitutes a state secret and to perform work on developing, producing, disseminating code (cryptographic) equipment," among other things.⁷⁹⁸ As another example of ongoing MVD work, the ministry confirmed that it is searching the Open Russia offices (the political movement founded on the initiative of the former jailed businessman Mikhail Khodorkovsky, a strong Putin opponent) due to information that the

⁷⁹⁵ Vladimir Todorov, "Cyber Threats to be Repulsed from the Center. FSB to Establish Centers to Combat Cyber Crime," *Gazeta.ru (News.ru)*, 20 March 2015.

⁷⁹⁶ *Interfax*, 18 March 2015.

⁷⁹⁷ *Interfax* (in English), 30 January 2014.

⁷⁹⁸ Ivan Komarov, "The Russian MVD Special Communications and Information Service Will Pay a Record Nine Billion Rubles for the 'Troika' Code," *Gazeta.ru (News.ru)*, 8 October 2014.

group's activists design and store calls for extremist activities. The premises are being searched for other electronic software relevant to the case as well.⁷⁹⁹

Military-Related Cyber/Information Reforms

Russian theorists and analysts have helped institute a series of reforms in the defense sector over the past several years that focus on the application of information concepts. First, it appears that the MOD closely watched developments in other countries. Now, the ministry has developed both a cyber-command and the Advanced Research Foundation, an organization similar in function to the US's Defense Advanced Research Projects Agency (DARPA). A lengthy discussion of the pros and cons of the network-centric concept has taken place on the pages of journals such as *Military Thought*. There has been intense discussion in military journals and publications on the use of precision-guided weapons, UAVs, and command and control issues, along with website and software upgrades. Finally, the Russian leadership is beginning to discuss the development of technologies that use information technology such as cyber-electromagnetic pulse, rail guns, lasers, and other technologies.

Different types of threats have been identified that required defense reforms. They include the development and dissemination of malware, the hacking of data processing and transmission systems, and the intrusion of false information. Reliable protection is equally important. A system can be made to fail by the use of "crooked" technology in one's work, an uncertified device, or, for instance, the introduction into hardware and software products of components that perform functions not stipulated in the documentation.⁸⁰⁰ Russia should adopt urgent measures to protect its information space, in particular that of the Armed Forces. To this end it is proposed that special subunits be

⁷⁹⁹ *Interfax* (in English), 16 April 2015.

⁸⁰⁰ 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.

incorporated in their structure. Methodologies are needed for assessing the survivability of the information and telecommunications system in conditions of net aggression and calculating the time-probability characteristics of typical computer attacks.⁸⁰¹

During the past two years there have been several very interesting cyber developments for the MOD. In January 2014 the Chief of the General Staff's Eighth Directorate stated that Russia will create a special structure to protect critically important facilities against computer attacks.⁸⁰² In April it was reported that Roselektronika will design a supercomputer which will help testing, along with simulations. The supercomputer's processing capacity is 1.2 petaflops.⁸⁰³ On 12 May an article noted that the creation of Information Operations Troops would be stopped, since it was too expensive.⁸⁰⁴ However, only two weeks later an article described the army's creation of cyber subunits. Missions included both defense and mounting attacks. In addition to programmers, the table of organization and equipment would include highly skilled mathematicians, engineers, cryptographers, communications personnel, translators, and other supplementary specialists. This will require a center for cyber defense inside the General Staff and a cyber-defense center for each military district and fleet.⁸⁰⁵ To date, however, no corroborating evidence has supported this contention in open source documents, other than the creation of a science company in Tambov dealing with cyber issues; and the desire to create two science companies of programmers, as noted in Chapter Six.

In October 2014 it was noted that the Strategic Rocket Force Troops are setting up cyber defense subunits. They are designed to detect and prevent computer attacks. Since digital technologies now control

⁸⁰¹ Ibid.

⁸⁰² *RIA Novosti Online (RIA News Online)*, 30 January 2014.

⁸⁰³ *RIA Novosti (RIA News)*, 9 April 2014. FLOPS (floating point operations per second) is a measure of a computer's processing speed. A petaflop is the equivalent of one quadrillion FLOPS.

⁸⁰⁴ *RIA Novosti Online (RIA News Online)*, 12 May 2014.

⁸⁰⁵ Aleksandr Stepanov, "Battle of the Computers," *Versiya (Version)*, 26 May 2014.

command and control aspects of weaponry and troops, these units are necessary to improve information security.⁸⁰⁶ In November Shoygu reported that Russia's National Defense Management Center was creating a protected hardware and software suite for consolidating information. To be activated on 1 December, the center links the military high command, Emergencies Ministry, nuclear power agency Rosatom, weather agency Rosgidromet, and other agencies. The hardware and software suite will automatically update information of major importance for the country's defense. Of interest is that "a system of centers and forces control points has already been set up" for control of defense and the branches and elements of the Armed Forces.⁸⁰⁷ This makes one believe that Russia is farther along in developing its cyber forces than it lets on.

In January 2015 Shoygu stated that at the all-Russian press festival, MEDIA-ACE-2015, a new project was created to help the media strengthen the military's positive image; and that information threats and the changing forms and methods of armed conflicts must be kept in mind by army development planners. It has become accepted knowledge that external interference in the affairs of sovereign states is more frequent, the Internet and mass media are being used to influence situations more and more, and reconnaissance, control, and attack means are improving. This requires that Russian troops be armed with high-tech weapons and hardware.⁸⁰⁸ Information technology supremacy is now a factor of military force.⁸⁰⁹ Shoygu stated that the day has come when "a word, a camera, a photo, the Internet, and information in general have become yet another type of weapon." This weapon can be an investigator, prosecutor, judge, and executor in bad hands.⁸¹⁰

Ministry of Defense website upgrades and other reform issues

⁸⁰⁶ TASS, 16 October 2014.

⁸⁰⁷ Channel One TV, 1 November 2014.

⁸⁰⁸ Interfax (in English), 30 January 2015.

⁸⁰⁹ Interfax (in English), 31 March 2015.

⁸¹⁰ Interfax (in English), 28 March 2015.

In January 2012 the Defense Ministry announced it would be upgrading its website as part of its reform effort. The purpose was to shape a positive attitude toward MOD activities. Information technology experts hoped for the following: to get over ten million persons on line simultaneously; from one to five million users viewing video relays simultaneously; to get 100,000 users able to work with a search engine and database; and to allow several thousand people to play 3D online games. Viktor Ryasnov, the information technology specialist of the Department for the Development of Information Technology, stated that the new website assembles network resources currently contained on several sites. For example, the website will allow officers to view the construction progress being made on their own apartments.⁸¹¹ This appears to be a way to strengthen the information-psychological stability of soldiers.

Also of interest has been the work of the General Staff's Military-Scientific Committee. The purpose of the committee appears to be justifying scientific work. One site lists several of the research institutes associated with the committee. The most prominent in regard to information security appears to be the 27th Central Research Institute, which studies command and control systems and the information infrastructure of the Armed Forces, among other duties.⁸¹²

At the Tambov science company, a military organization designed to recruit talented young programmers, students will be taught how to wage computer wars, erect barriers against Internet attacks, prevent attacks on classified networks, and impede an adversary's troop command and control and weapon use.⁸¹³ Another report on the science company stated that the new subunit will make it possible to boost the efficacy of applied-science research, testing in the EW sphere, and

⁸¹¹ Denis Telmanov and Artem Kuybida, "Armed Forces: Defense Ministry Has Stormed the Internet," *Izvestiya Online (News Online)*, 15 January 2012.

⁸¹² See <http://eng.mil.ru/en/science/sro.htm>

⁸¹³ Aleksandr Stepanov, "Defense Ministry Announces Recruitment for Science Troop. Students Will be Put under Cyber Arms," *MK Online (Moscow Komsomol Online)*, 6 April 2015.

training of specialists, and will help in developing data protection methods.⁸¹⁴ In June 2015 a new cadet information technology school was announced. It will open in September in Saint Petersburg. Cadets will study physics, math, and information technology. The school will have a network center, a multimedia apparatus center, a software lab, a robotics lab, and a 3D center.⁸¹⁵ The science company and cadet school may serve as building blocks for Russian cyber troops. However, there has never been confirmation of where they are located or even if they had actually been developed. In 2013 Shoygu had supported the development of a cyber-command authority,⁸¹⁶ but again, even though it may exist, there has been no official announcement.

Other significant cyber-related reports in 2015 include Russian military reports of foreign spy satellites posing as space junk. They wake up and work when directed to do so. This report quoted Oleg Maydanovich, the Commander of Troops at the Space Command, who revealed that his people had “recently discovered a group of satellites created for the purpose of electronic intelligence-gathering.”⁸¹⁷ These revelations were not substantiated further. Also it was reported that a military unit to counter cyber threats would be created in Crimea in October or November. The unit will secure Russian information systems and disrupt information systems of probable enemies, if needed.⁸¹⁸

In conjunction with these cyber reforms, the military developed one new concept on information and updated two of its military doctrinal statements. The paper was developed in 2011 and was titled *Conceptual Views on the Activities of the Armed Forces of the Russian Federation in Information Space*. The two doctrinal statements were the 2010 and 2014

⁸¹⁴ Anton Valagin, “The Ninth Company Will Become an Electronic One,” *Rossiyskaya Gazeta Online (Russian News Online)*, 26 January 2015.

⁸¹⁵ *Ministry of Defense of the Russian Federation*, 24 June 2015.

⁸¹⁶ Aleksey Mikhaylov and Dmitriy Balbuov, “Shoygu Returns to Rogozin’s Idea of Creating a Cyber Command Authority. The Defense Ministry is Preparing for a Full-Scale War in Cyber Space,” *Izvestiya Online (News Online)*, 12 February 2013.

⁸¹⁷ *Zvezda (Star) TV*, 12 April 2015.

⁸¹⁸ *Interfax* (in English), 17 April 2015.

military doctrines of the Russian Federation. A summary of their main points is developed below.

Conceptual Views.

In 2011 the MOD proposed a document known as the *Conceptual Views on the Activities of the Armed Forces of the Russian Federation in Information Space*. This document defined terms that included information warfare and information weapons, among others. *Conceptual Views* also offered principles (legality, priority, integration, interaction, cooperation, and innovation) to guide the activities of the Russian Federation's Armed Forces (RFAF) in information space. Issues that the Russian document emphasized included:

- Legality: respect for national sovereignty and noninterference in the internal affairs of other states;
- Priority: collection of relevant and reliable information regarding threats, protection of information resources;
- Integration: utilization of a coordinated and unified system to enhance the capabilities of the entire system;
- Interaction: coordination of defense activities with other federal executive bodies;
- Cooperation: development of cooperation on a global level to detect and prevent information and technological threats to peace, settlement of disputes involving these assets, confidence-building measures in regard to the use of trans-boundary information systems, and ensuring the secure use of common information space;
- Innovation: recruitment of skilled personnel; Russia's innovation centers must be able to develop and

produce systems capable of carrying out activities in information space.⁸¹⁹

The paper proposed several definitions of terms. One of the most interesting was the concept of information war, which the paper defined in the following way:

Conflict between two or more States in information space with the goal of inflicting damage to information systems, processes, and resources, as well as to critically important structures and other structures; undermining political, economic, and social systems; carrying out mass psychological campaigns against the population of a State in order to destabilize society and the government; as well as forcing a State to make decisions in the interests of their opponents.⁸²⁰

Of interest is that this last line is nothing more than the definition of reflexive control (RC), which the Russians use to deceive decision-makers into making decisions that Russia desires. RC was defined in 1995 by Colonel S. Leonenko, who stated that RC “consists of transmitting motives and grounds from the controlling entity to the controlled system that stimulate the desired decision. The goal of RC is to prompt the enemy to make a decision unfavorable to himself.”⁸²¹

The *Conceptual Views* further included rules for the use of information space when it is used as an agent of conflict deterrence, conflict prevention, and conflict resolution:

⁸¹⁹ “Conceptual Views on the Activities of the Armed Forces of the Russian Federation in Information Space,” *Ministry of Defense of the Russian Federation*, 2011.

⁸²⁰ *Ibid.*

⁸²¹ S. Leonenko, “On Reflexive Control of the Enemy,” *Armeyskiy sbornik (Army Digest)*, No. 8 1995, p. 28.

- Deterrence and conflict prevention: develop an information security system for the RFAF that can deter and resolve military conflicts in information space; remain in a constant state of readiness; expand the group of partner states; conclude, under UN auspices, a treaty on international information security; establish control over the escalation of conflict; take priority steps to counter the development and spread of a conflict; neutralize factors leading to the conflict's spread; and shape public opinion means to limit the ability of instigators to further escalate the conflict.
- Conflict resolution: resolve information space conflicts primarily through negotiation and reconciliation; if in a crisis stage, exercise individual and collective self-defense rights not inconsistent with international law; deploy manpower and resources for ensuring information security on the territory of other states in the course of negotiations in accordance with international law; keep all media informed of the situation.⁸²²

It was noted that Russia's defensive capability depends, to a large extent, on the effectiveness of Armed Forces activities in information space.

2010 Military Doctrine

In 2010 Russia approved a new military doctrine.⁸²³ This version was divided into sections that discussed military dangers and threats, the military policy of the Russian Federation, and military-economic support for defense. Information issues were not stated as an express external military danger, but rather as an internal military danger defined as the disruption of the functioning of organs of state power, of important state

⁸²² *Conceptual Views.*

⁸²³ See

<http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=40266>.

and military facilities, and of the information infrastructure of the Russian Federation. Any impediment to the functioning of state or military command and control systems was expressed as a main military threat. The intensification of the role of information warfare was noted as a characteristic of contemporary military conflicts. The prior implementation of measures of information warfare in order to achieve political objectives without the utilization of military force was identified as a feature of modern military conflicts. High-tech devices to be used in future military conflicts include precision weaponry, electromagnetic weapons, lasers, infrasound weaponry, computer-controlled systems, drones, and robotized models of arms and military equipment.⁸²⁴

According to the doctrine, Russia must possess the proper information technology to deter conflict. Improving the system of information support for the troops was given as a main task for the development of military organization. With regard to military-economic support, the main task was to create conditions for developing military-technical potential at a level necessary for implementing military policy. This included developing forces and resources for information warfare, improving the quality of the means of information exchange using up-to-date technologies, creating new models of precision-guided weapons, and developing information support for them.⁸²⁵

2014 Military Doctrine

The latest military doctrine noted that “a trend toward a shift of military dangers and military threats into the information space and internal sphere of the Russian Federation has begun to show.”⁸²⁶ A military danger is characterized by the aggregate of factors capable of leading to a military threat. The latter is defined as characterized by the real possibility of the outbreak of a military conflict, and it is here that

⁸²⁴ Ibid.

⁸²⁵ Ibid.

⁸²⁶ Section 11, “Military Doctrine of the Russian Federation,” *President of Russia Website*, 26 December 2014.

things become even more dangerous. Section 12 of the doctrine states that a main external military danger is the

use of information and communications technologies for military-political objectives to carry out actions contradicting international law, directed against the sovereignty, political independence, and territorial integrity of states, and representing a threat to international peace, security, and global and regional stability.⁸²⁷

Internal dangers include activities aimed at disorganizing the information infrastructure of Russia, as well as activities having an information effect on the population, especially among young citizens, in order to undermine historical, spiritual, and patriotic traditions in the area of homeland protection.⁸²⁸

A main task of the Russian Federation with regard to preventing or deterring military conflict is to estimate and forecast the state of interstate relations in the military-political sphere using state-of-the-art technical means and information technologies; and to create conditions that lower the risk of information and communications technologies being used for military-political objectives to carry out actions contradicting international law.⁸²⁹ A main task for developing military organization is to upgrade the system of information security of the Armed Forces. Finally, regarding tasks for outfitting the Armed Forces, developing the defense-industrial complex, and implementing military-political cooperation, the following were mentioned:

- Development of information confrontation forces and assets

⁸²⁷ Ibid., Section 12 of the Doctrine.

⁸²⁸ Ibid., Section 13 of the Doctrine.

⁸²⁹ Ibid., Section 21 of the Doctrine.

- Quality upgrading of the means of information exchange based on the use of state-of-the-art technologies and international standards, as well as a unified information space of the Armed Forces, other troops, and entities as part of the Russian Federation information space
- Creation of basic information-control systems and their integration with fire control systems and automation equipment complexes of command and control entities of the strategic, operational-strategic, operational, operational-tactical, and tactical scale⁸³⁰
- Support of Russian Federation technological independence in the production of strategic and other models of arms
- Formation of a package of priority technologies supporting advanced systems and models of arms⁸³¹
- Development of a dialogue with interested states on national approaches to opposing military dangers and military threats arising in connection with large-scale use of information and communications technologies.⁸³²

What about Color Revolutions and the Armed Forces?

Russia's 2014 military doctrine notes that "a trend toward a shift of military dangers and military threats into the information space and internal sphere of the Russian Federation has begun to show."⁸³³ This trend is felt not just within Russia's political and diplomatic circles but also in military ones. Thus, Russia sees cyber dangers lurking everywhere.

⁸³⁰ Ibid., Section 46 of the Doctrine.

⁸³¹ Ibid., Section 53 of the Doctrine

⁸³² Ibid., Section 55 of the Doctrine.

⁸³³ Section 11, "Military Doctrine of the Russian Federation," *President of Russia Website*, 26 December 2014.

For example, an article in the authoritative journal, *Military Thought*, titled, “Political Engineering of Color Revolutions: Ways to Keep Them in Check” is representative of such dangers.⁸³⁴ At the recent Army-2015 Forum Defense Minister Sergey Shoygu noted that the Russian Federation plans to order scientific research on the “color revolution” topic. While some think it is not right to involve the military in political issues, Shoygu noted that it is not right to repeat the situation of the collapses of 1991 and 1993.⁸³⁵ Chief of the General Staff Valery Gerasimov stated that “the technology of these revolutions has already become standard: manipulating the populations protest potential from outside using information space together with...other nonmilitary measures.”⁸³⁶

Cyber Articles in Military Thought in 2015

The following articles were published in *Military Thought* in 2015. Included are articles that reference or are directly involved with information topics. They include technologies, moral and psychological info support, EW, information systems, and so on. The purpose is to let the reader see how intense the discussions are on these topics.

No 1, 2015

“Military and Political Aspects of the State Policy of the Russian Federation in the Field of International Information Security” (I. N. Dylevsky, V. O. Zapivakhin, S. A. Komov, A. N. Petrunin, and V. P. Elyas)

No. 2, 2015

“An Approach to the Construction of an Electronic warfare System in the Conditions of Realized Network-Centric Concepts of the Armed

⁸³⁴ A. N. Belsky and O. V. Klimenko, “Political Engineering of Color Revolutions: Ways to Keep Them in Check,” *Voennaya Mysl’ (Military Thought)*, No. 9 2014, pp. 3-11.

⁸³⁵ Ivan Petrov, “Defense Ministry Will Order Scientific Work on the Topic of ‘Color Revolutions,’” *Rossiyskaya Gazeta Online (Russian News Online)*, 19 June 2015.

⁸³⁶ *Ministry of Defense of the Russian Federation Website* (in English), 16 April 2015.

Forces Development” (Yu. Ye. Donskov, V. I. Zimarin, and B. V. Illarionov)

“Hatred of the Enemy as an Important Element of Information Security in Wartime” (A. Yu. Golubev)

No. 3, 2015

“About the Tactics of EW Troops” (V. A. Dvornikov, I. A. Korolov, and V. N. Pavlov)

No. 4, 2015

“The Media as an Effective Tool in Forming a Positive Image of Servicemen of the Russian Interior Ministry’s Internal Troops” (I. V. Maneyev, and V. N. Apanasenko)

No. 5, 2015

“A Model for Training of Electronic Warfare Specialists to Carry Out Tasks on Information Support of Military (Combat) Actions” (Yu. Ye. Donskov, S. V. Golubev, and A. V. Mogilyov)

No. 6, 2015

“Basic Problems of Modeling Systems and Means of Aerospace Defense Based on Advanced Information Technologies” (V. M. Grigorenko and D. I. Melnik)

No. 7, 2015

“The Role of Information and Psychological Means to Ensure the Country’s Defense Capability” (I. V. Puzenkin and V. V. Mikhailov)

“Socialization and Education of Cadets in a Military Higher School by Means of Information Technologies” (E. A. Korzhan, D. M. Kryukov, and L. V. Kotenko)

“Theoretical Aspects of the Development of Electronic Documents Circulation’s System of the Ministry of Defense of the Russian Federation” (N. I. Yeliseyev and O. A. Finko)

“Analysis of the Possibilities for Extending the Sphere of the Application of Geographic Information Systems for Military Purposes” (B. A. Fisich, I. M. Rutko, and Ye. Sh. Diveyev)

No. 8, 2015

“Assessment and Recognition of Moral-and-Psychological Factors during Decision-Making by Commanders Using Automated Systems of Command and Control” (S. V. Goncharov and O. G. Zayets)

“Features of Moral-and-Psychological Support of the Combat Service Activities of the Russian Interior Ministry’s Internal Troops in the Northern Caucasus” (S. A. Sakun and A. V. Kiselyov)

“Efficiency Group of Electronic Warfare Forces during complex Defeats of the Information Management System of the Enemy” (A. S. Korobeynikov, D. V. Kholuyenko, and S. I. Pasichnik)

“Using Forces and Means of Electronic Warfare for the Protection of Ground Objects from Aerospace Attacks” (Yu. Ye. Donskov, S. N. Zhikharev, and A. S. Korobeynikov)

“XXXIV All-Russian Scientific-and-Technological Conference ‘Problems of the Efficiency and Safety of Complex Technological and Information Systems’” (Yu. V. Astapenko)

No. 9, 2015

None

No. 10, 2015

“Prospects for the Creation of Corporate Automated Information Systems for Military Use” (V. N. Kozichev, V. N. Kargin, A. V. Shirmanov, and S. P. Goloshev)

“The Role of Intelligent Decision-Making Support Systems during the Control of Electronic Warfare at Combined-Arms Tactical Formations” (Yu. Ye. Donskov, O. G. Nikitin, and P. N. Besedin)

No. 11, 2015

“The Experience and Prospects of the Concept of a Unified Information-and-Communication Network for the Control of Troops” (A. V. Khomutov)

“On Estimating the Combat Effectiveness of Information Support for the Control of Combined-Arms Tactical Formations” (V. V. Kondratyev, A. Yu. Krupsky, and D. Ye. Panteleyev)

“Features of the Methodological Support to Evaluate the Effectiveness during Modeling of Complex Defeats of the Information-and-Control Systems of the Enemy” (S. I. Pasichnik and A. S. Korobeynikov)

No. 12, 2015

Seven of the eleven articles were on electronic warfare.

What about a Cyber Dead Hand?

David Hoffman's excellent book about the fall of the Soviet Union, titled *The Dead Hand*, is certainly one of, if not the, best works on that historical period from the perspective of the arms race. On page 422 he outlines a system known as Perimeter that was gleaned from interviews in Russia conducted by Brookings Institution scholar Bruce Blair with Russian missile expert Valery Yarynich. Perimeter was a type of "Dead Hand" system (as if rising from the grave) that allowed the launch of rockets that flew across Russia and literally "threw down" the codes to intercontinental ballistic missiles, enabling their launch without receiving the codes from the leadership in Moscow. It thus could launch missiles in case the leadership in Moscow was killed in a strike or incapacitated. Yarynich noted the following about Perimeter in a paper that Blair reported on:

It outlined how the 'higher authority' would flip the switch if they feared they were under nuclear attack. This was to give the 'permission sanction.' Duty officers would rush to their deep underground bunkers...if all communications were lost, then the duty officers in the bunker could launch the command rockets. If so ordered, the command rockets would zoom across the country, broadcasting the signal 'launch' to the intercontinental ballistic missiles.⁸³⁷

During Perimeter's (Dead Hand's) practice sessions, when US agencies were monitoring the activities of the strategic rocket forces, missiles did not launch immediately after receiving signals from the rockets zooming across Russia. The Soviet command knew the US was watching these exercises, so they set a delay in the procedure and allowed the missiles to launch, say, 40 minutes or even 24 hours after the

⁸³⁷ David E. Hoffman, *The Dead Hand*, Doubleday, 2009, p. 422.

rockets gave them the command. Blair went back to Washington and checked the data that the US had collected. He found out that heavy missiles did fly, just forty minutes after the command rockets, on the date the exercise took place. Yarnich had told him the truth.⁸³⁸ Thus, even if the Soviet High Command was eliminated, there was still a way for a retaliatory response—via what is often termed a Dead Hand. The development of this type of system makes one wonder if, in the age of weapons of mass disruption, is there a cyber-Dead Hand ready to initiate a retaliatory response against an adversary's infrastructure in case Russia's information/cyber infrastructure is somehow completely disabled?

International and Diplomatic Issues: A China Focus

Andrey Krutskikh, a prominent Russian writer on information security issues and member of the Russian Ministry of Foreign Affairs, noted that Russia has tried to stimulate international discussion of information security issues over the past decade. Two mechanisms that he backs are the code of conduct disseminated on 12 September 2011 at the 66th Session of the United Nations Security Council, and the 21-22 September 2011 Convention on International Security, presented in Yekaterinburg, Russia.⁸³⁹

The discussion below first examines a 2015 directive on information security made exclusively with China. The analysis then compares the information security sections of the 2009 and 2015 National Security Strategies of Russia; highlights the objectives of the conferences the Russians held in Garmisch, Germany on information security issues from 2010-2015; and ends with a UN paper proposed in August 2015.

⁸³⁸ Ibid.

⁸³⁹ Remarks by Russian Foreign Ministry representative Andrey Krutskikh, Embassy of the Russian Federation in the United Kingdom of Great Britain and Northern Ireland (in English), 1 November 2011. For an examination of the Code of Conduct and the Yekaterinburg Convention, see "Cyber Strategy: Can Russia Cope in Future Conflicts?" May 2012, at <http://fmso.leavenworth.army.mil>

2015 Directive on a RF/PRC Agreement on International Information Security

Directive No. 788-d was dated 30 April 2015. It contained ten articles and an annex. The articles were fundamental concepts, principal threats to information security, principal areas of cooperation, general principles of cooperation, principal forms and mechanisms of cooperation, information protection, financing, relationships to other treaties, dispute resolution, and concluding provisions. The annex defined ten terms.⁸⁴⁰ They are: information security, infrastructure, area, resources, and protection; critical information infrastructure facilities; computer attack; illegal utilization of information resources; unsanctioned interference with information resources; and threats to information security.⁸⁴¹ The directive discussed threats to critical information infrastructure facilities, such as networks, finance, power, and so on; and it discussed the importance of illegally influencing the creation or processing of information.

Two terms that were defined are worth highlighting, information area and computer attack. An information area is

the sphere of activity associated with information creation, transformation, transmission, utilization, and storage exerting an influence on, *inter alia*, individual and social consciousness, information infrastructure [defined as the aggregate of technical facilities and systems for information creation, etc.], and information proper.⁸⁴²

Thus an information area concerns itself with both information-technical (infrastructure, transmission, etc.) and information-psychological (individual and social consciousness). An information attack is

⁸⁴⁰ “Directive on an Agreement between the Governments of the Russian Federation and the People’s Republic of China on International Information Security,” *Government of the Russian Federation Website*, 13 May 2015.

⁸⁴¹ *Ibid.*

⁸⁴² *Ibid.*

The deliberate use of software (software and hardware) tools to target information systems, information and telecommunications networks, electrical communications networks, and industrial process automated control systems carried out for the purposes of disrupting (halting) their operation and (or) breaching the security of the information being processed by them.⁸⁴³

Thus an information attack appears focused more on systems than people, although it can, of course, impact them depending on the type of messages transmitted.

Article Two was of interest as well with regard to information-technical and information-psychological activities. It considered information security threats to be constituted by the utilization of information and communications technologies for carrying out acts of aggression aimed at violating state's sovereignty, security, and territorial integrity; for inflicting economic and other harm, such as exerting a destructive impact on information infrastructure facilities; for terrorist purposes (to include the propaganda of terrorism); and for perpetrating infringement of the law and crimes, such as illegal access to computer information. Two of the threats are singled out below for their focus on influencing the thoughts of Russian and Chinese citizens, utilizing technologies:

To interfere in states' internal affairs, violate public order, inflame interethnic, interracial, and interfaith enemies, propagandize racist and xenophobic ideas and theories giving rise to hatred and discrimination and inciting violence and instability, and also to destabilize the internal political and socioeconomic situation and disrupt the governance of a state...⁸⁴⁴

⁸⁴³ Ibid.

⁸⁴⁴ Ibid.

To disseminate information harmful to sociopolitical and socioeconomic systems and inimical to the spiritual, moral, and cultural environment of other states.⁸⁴⁵

Of special interest was that each state “shall not carry out such actions against the other Party and shall assist the other Party in the realization of the said right.”⁸⁴⁶ “Such actions” include the right to protect the states information resources against illegal utilization and unsanctioned interference, including computer attacks on them. The definition of an information area stated that it was “the sphere of activity associated with information creation, transformation, transmission, utilization, and storage exerting an influence on, *inter alia*, individual and social consciousness, information infrastructure, and information proper.”⁸⁴⁷

Thus the directive appeared to address three main areas: technological threats to the sovereignty or internal affairs of a state (especially infrastructure), cooperation among various organizations in regard to cyber affairs, and the refusal to carry out cyber-attacks against one another. A cyber-attack was defined as

National Security Strategy

The strategy of May 2009 listed national security tools as the technologies and also the software, linguistic, legal, and organizational items and telecommunication channels that transmit or receive information on the state of national security.⁸⁴⁸ The concept was divided into The Contemporary World and Russia; Russia’s National Interests and Strategic National Priorities; and Organizational, Normative-Legal, and Information Bases for Implementing the Present Strategy. Information issues that the document either discussed or highlighted included the following:

⁸⁴⁵ Ibid.

⁸⁴⁶ Ibid.

⁸⁴⁷ Ibid.

⁸⁴⁸ *Russian Federation Security Council Website*, 12 May 2009.

- The global information confrontation
- The use of information to enhance strategic deterrence
- The ability of information to present a threat to military security
- The illegal movement of narcotics and ‘psychotropic substances’
- The preservation of information technologies and information focusing on the various issues of society’s socio-political and spiritual life
- The development of information and telecommunications technologies such as computer hardware and electronics
- The proper use of the information-telecommunication medium
- The implementation of a series of information measures serving as the basis of this strategy: harmonizing the national information infrastructure with global information networks and systems; overcoming the technological lag in information science; developing and introducing information security technologies in the state and military administrative systems; increasing the level of protection of corporate and individual information systems; and creating a single information-telecommunications support system for the needs of the national security system.⁸⁴⁹

The document did not address in detail some of the salient concepts, such as how information would be used to enhance strategic deterrence; how information presents a threat to military security; and what the proper use is of the information-telecommunication medium, among other issues.

⁸⁴⁹ A. A. Strel'tsov, *Gosudarstvennaya Informatsionnaya Politika: Osnovy Teorii (Government Information Policy: Basic Theory)*, Moscow MTsNMO 2010.

The *2015 National Security Strategy* used the term information 36 times. The term cyber does not appear. The main use of information, it seems, is as an instrument “set in motion in the struggle for influence in the international arena” (along with political and financial-economic instruments). The Strategy also noted that the confrontation in the global information arena is “caused by some countries’ aspiration to utilize informational and communication technologies to achieve their geopolitical objectives, including by manipulating public awareness and falsifying history.” For most Westerners, this appears to be exactly what Russia did in Ukraine, never mentioning Putin’s influence on Yanukovich and striking out on an information campaign that, according to even Russian analysts, surpassed anything seen during the time of the Soviet Union. Information is also mentioned as a measure to be implemented in order to help ensure strategic deterrence. The “inadvertent” mention of the Status-6 top secret torpedo on Russian TV is an example of an information deterrence application. Information associated with extremism or terrorism is taken to be a significant threat to public security; and in order to counter such threats, an information infrastructure must be developed that ensures the public’s access to information on issues relating to the sociopolitical, economic, and spiritual life of Russia’s citizens.⁸⁵⁰

Lomonosov Moscow State University Institute of Information Security Conferences in Garmisch, Germany

Ever since 2007 Russia has been hosting an international forum on information technology issues. The yearly event has two parts: a conference in Garmisch and a conference in Moscow (or, as in 2011 and later, in another country). The following list sites the topics discussed at these conferences in Garmisch:

⁸⁵⁰ Edict of the Russian Federation president, “On the Russian Federation’s National Security Strategy,” *President of Russia Website*, 31 December 2015. See sections 13, 21, 36, 43, and 53 of the document.

2010: international cooperation, counteracting cyber terrorism, information warfare deterrence, personal data protection, Internet governance mechanisms, and international cooperation in R&D

2011: concept of the international legal framework to regulate information (cyber-) space behavior, defining the source (organizer) of cyber-attacks (scientific, technical, legal), international information security glossary, and content monitoring and filtering (to include preventing terrorist use of the Internet)

2012: classification of threats for UN documents, consideration of cyber espionage and intervention in internal affairs of another country as threats, relations between state responsibility for aggression and the authority for ruling in cyberspace, network sovereignty, types of international documents needed for information security, and the state of international relations regarding legal documents.

2013: Workshop Roundtables, as written, were: Internet: space of freedom or a new battlefield?; Multistakeholder Internet governance model: best practices, problems, solutions; National approaches and policies in cyber security; National approaches towards content filtration of the Internet; The best practices of public-private partnership to develop safe Internet Legal aspects (sovereignty and non-intervention, state responsibility, law of armed conflict); and Cyber conflicts: models and deterrence mechanisms.

2014: Workshop Roundtables, as written, were: Adaptation of international law to conflicts in information space: trends and challenges; Critical infrastructure and information security: challenges and initiatives; International information security research consortium; National approaches and priorities of international information security system development; and Challenges of international information

security in the context of trends and advanced technological development.

2015: Proposals on frameworks for the adaptation of international law to conflicts in cyberspace; Improving the information security of critical infrastructures: possible initiatives; Legal and technical aspects of ensuring stability, reliability, and security of the Internet; challenges of countering the threat of the use of social media for interference in the internal affairs of sovereign states; and national priorities and business approaches in the sphere of international information security development⁸⁵¹

August 2015 United Nations Report

In 2015 a UN special report was prepared on norms of state cyber behavior. Russian cyber expert Andrey Krutskikh listed five aspects of the report: that the report attempts to prevent the military-political use of information and communication technologies; that sides should not accuse one another of cyber-attacks; that allegations that states organize and perpetrate cyber-attacks must be proven; that information and telecommunication technologies are to be used only for peaceful purposes; that backdoors in information technology products are illegal and malicious; and that it is the sovereign right of states to be in command of information and communication infrastructures in their territories. The report was submitted to the UN secretary general who would present it at the 70th session of the UN General Assembly. Russia preferred a legally binding international convention on global cyber security under the UN aegis, but Krutskikh noted that his Western partners are not ready for this document.⁸⁵²

Conclusions

The Kremlin appears to have constructed a series of policies, treaties, weaponry, and other developments to confront what it considers

⁸⁵¹ Each list of topics by year was taken from the Lomonosov's published agenda.

⁸⁵² *Interfax* (in English), 17 August 2015.

the contemporary cyber threat. Russia is motivated by dangers and threats to its information space, whether they be political, economic, military, diplomatic, or others. Luckily it is blessed with an educational system that continues to produce outstanding algorithm writers, who are constantly in demand in the information age. Software writers and their teams are the most well-known elements in Russia. Their software is the key element in new weaponry that delivers ordinance on target and enables command and control organs to function in a timely manner. There is also a thriving hacker and troll community to watch.

These code writers represent an important part of Russia's cyber defense. They assist in monitoring social networks, bloggers, and the banking industry, among other organizations. In addition, the policies enacted by President Putin and his staff have also helped him to control cyber issues. The development of a cybersecurity council and the approval of treaties and codes of cyber conduct with, among others, China, Central Asian countries, India, Brazil, and South Africa represent the continued forward progress in contending with cyber issues.

The number of cyber developments has been impressive, from the "Cyberspace Strategy of the Russian Federation" (designed to provide for the cyber security of individuals, organizations, and the state) to the creation of new science companies, such as that at Tambov. Similar organizations will continue to be developed, it appears, to deal with emerging technologies. Perhaps a science company dealing with weapons based on new physical principles will appear next. It is anyone's guess when cyber troops as a specific military organization (a battalion or brigade) will make their appearance.

The overall intent of this vast program is to further enhance military reform by introducing high-tech equipment into the military; to use the FSB to control the population's online activities; to engage the international community in developing a cyber-code of conduct; and to prevent "color revolutions" from breaking out in Russia. As Defense Minister Shoygu stated, words, cameras, photos, the Internet, and other types of information can become weapons on their own. These weapons can serve, in the hands of an investigator, prosecutor, or judge, Shoygu notes, as elements that change the course of history.

In the meantime, Russia will continue down the path of developing new and exotic cyber equipment for its forces and society. Sensitive information will be protected, criminals will be found in cyberspace, hacking will be opposed, and a technology infrastructure will be constructed throughout the country. Suspicion of the West will, however, continue to dominate security thinking. A recent report stated that Microsoft is not allowed to gather and process personal information (as its user agreement specifies) on Russian territory with its new operating system, since it is not included in Russia's National Register of Personal Data Operators.⁸⁵³ Thus the saga continues...

⁸⁵³ Unattributed report, *RT Online* (in English), 11 August 2015.

PART THREE: GEOPOLITICS

UKRAINE GEO POLITICS & THE ARCTIC



CHAPTER EIGHT: NORTHERN EXPOSURE: REVEALING RUSSIA'S ARCTIC INFRASTRUCTURE BUILDUP

The Arctic has been under ‘our sovereignty for several years. This is how this will be in the future.’⁸⁵⁴
Vladimir Putin, October 2013

Introduction

This chapter will examine Russia’s diplomatic and military activities in the Arctic, where it is using all of its assets to strengthen its claims in the region. President Vladimir Putin has noted that the Arctic has been under “our sovereignty for several years. This is how this will be in the future.”⁸⁵⁵ Other nations do not agree with Putin and will battle him tooth and nail for property rights over this vast, prosperous, and contestable territory. Some believe the battle over Arctic sovereignty is but a prelude to a struggle over future claims, such as moon property when landings there become more frequent. That is, earth-bound battles over the so-called global commons could set a type of legal precedent for other claims, since wherever there is value, “there are eventually property rights” involved.⁸⁵⁶ This provides nations yet another reason to focus on the area.

Part One of the chapter covers the general diplomatic and military situation as background to the importance and activities of the Arctic. Part Two is a more detailed coverage of specific Russian military activities in the area since 2014.

Part One

There are reports that 386,000 square miles of Arctic ice melted in 2007 alone, thereby allowing the Northern Sea Route (NSR, also known as the Northeast Passage) to open for the first time in recorded

⁸⁵⁴ *Interfax* (in English), 3 October 2013.

⁸⁵⁵ *Interfax* (in English), 3 October 2013.

⁸⁵⁶ Richard Morgan, “Slicing Up the Moon,” *Wired*, December 2007, p. 46.

history. This event has brought the billions of barrels of oil and other minerals that many believe are under the Arctic closer to being extracted by someone. Such thinking gets everyone's attention. No one wants to be late for the "big dig."

Russia has insured not only that it will be on time for the party but that it may in fact host it. Using diplomatic cover from Foreign Minister Sergey Lavrov, who has assured nations ever since 2009 that no military problems exist there, the Defense Ministry has totally militarized the area and called 2014 "the Year of the Arctic." By October 2014 Russian Defense Minister Sergey Shoygu had promised that military units would be deployed across the entire Arctic belt.

The aim of this militarization from a Russian perspective is to protect three things: the NSR, national interests (mineral and energy resources, national security in the north), and economic facilities in the area. A new rationale for militarizing the area has been the Russian explanation that NATO is expanding up to Russia's borders. The Arctic thus offers opportunities for a hydrocarbon treasure hunt, a way to control a major transport node, and a way to improve national security..

To implement this plan, Shoygu created a Sever (Northern) Command (which is now considered by some as the military's fifth major "district" and which started to work on 1 December 2014⁸⁵⁷), developed plans to create a continuous radar field in the country's north along with the deployment there of two brigades (the 200th Separate Motorized Rifle Brigade at Kola's Pechenga, and later, by 2016, the 80th brigade in Yamalo-Nenetskiy Autonomous Okrug), and paid special attention to the further construction of the Northern Fleet (which will serve as the foundation of Sever) and the organization of aerospace defense.

For other nations bordering the Arctic, how the region's boundaries are demarcated and sovereignty asserted (the proposed

⁸⁵⁷ *Interfax* (in English), 25 November 2014.

projections of their continental shelf into the Arctic Ocean and how the United Nations rules on their claims) has become THE issue of great concern, since it could result in untold fortunes for a nation's coffers. There are many areas of contention. For example, three authors from the Mikhaylovskaya Military Artillery Academy noted that the main factors giving rise to Arctic conflict are the ownership of underwater ridges, exploitation rights over mineral deposits, use of the NSR, and the division of the sea area for offshore operations.⁸⁵⁸

This focus on boundaries and sovereignty has mandated the national mapping of multiple off-shore points so that a legitimate and internationally recognized claim can be made. Off-shore points, according to one source, are measured as:

The area where the ocean depth drops to 2,500 meters, and the place where a country's land mass drops off to become seafloor, a spot called the foot of the continental slope. If these points are farther out than current boundaries, there may be a case for extending the oceanic property line. But the foot of the slope can be tricky to locate.⁸⁵⁹

The uncertainty associated with boundaries is relatively new since, historically, boundaries were settled in a more simplistic manner. For example, at one time the Cannon Shot Rule gave countries control of waters up to 3 miles out, or roughly the range of a 17th century cannon. In 1994 the United Nations (UN) created the Law of the Sea Treaty, and about that time the standard claim on territory extended to 200 miles out from shore. Also in 1994 countries were given 10 years to submit maps for ratification as to the extent of their continental boundary. These claims now have become the main questions of the present decade—how

⁸⁵⁸ 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.

⁸⁵⁹ Geoffrey Gagnon, "The Last Great Land Grab," *Wired*, February 2008, p. 87.

will the UN treat overlapping claims⁸⁶⁰ and how will nations' claims be verified?

Russia has continued its attempts to change its Arctic borders through additional mapping. On 29 October 2014 Russia submitted a new bid to a UN commission regarding border changes in the region (a 2015 bid has been prepared and will be discussed in February 2016). A survey mission was carried out by the Akademik Fyodorov Research Vessel, and the data it obtained will be sent to the UN Commission on the Limits of the Continental Shelf. Russia's new proposal would extend its area by 1.2 million square kilometers. The extension would allow Russia a five billion ton oil equivalent resource increase. The acquisition would also broaden Russia's ability to secure its geopolitical interests in the area.⁸⁶¹ Deputy Natural Resources and Environment Minister Denis Khramov believes Russia needs 15-17 drilling rigs for shelf operations in 2015-2020, along with "over 70 support vessels, six-seven seismic survey vessels, and two-three icebreakers."⁸⁶²

If Putin is successful in obtaining Arctic resources, Russian strategists will have accomplished a rare feat. They will have created not an iron curtain, but a hydrocarbon curtain or an arc of oil wells flowing from the Crimea in the south, through Ukraine's shale gas deposits in Eastern Ukraine and Russia's vast oil and gas fields, to the north and its vast Arctic treasures. Russia will thereby be in charge of many energy resources north of the equator. The effort is being assisted through Russia's international negotiation strategy and the militarization of the Arctic, to include the construction of a series of military bases on strategic islands located in the area. Recently, Putin moved 4,000 troops along the border with Kazakhstan. Was this meant to be a warning to Kazakhstan, that Putin wants to ensure he will have future access to the space platform there, or is this an attempt to eventually exert control over

⁸⁶⁰ Ibid., pp. 88-89.

⁸⁶¹ *Interfax* (in English), 20 October 2014.

⁸⁶² *Interfax* (in English), 24 December 2014.

Kazakhstan's oil fields as well? His thirst for oil deposits makes one wonder.

The Use of Diplomatic Subterfuge

Putin used the relaxed international atmosphere of 2009 and the pullback of US troops from overseas deployments (due to budget constraints and war weariness) to assist in the accomplishment of his Arctic goals. Foreign Minister Sergey Lavrov assured the international community that Russia has no interest in militarizing the Arctic (while the Russian Defense Ministry did just the opposite). The latter has included the construction of a vast military infrastructure and the development of a northern strategic command that is the equivalent of another military district or, using Soviet terminology, a new theater of military operations. The command's reach extends beyond the North Pole according to Russian sources.

Over the past several years, as the Arctic ice cap began to recede, diplomats have conducted intense negotiations and planning, mainly over who will own the land on which the region's natural resources are located. Eight countries make up the so-called Arctic Council where much of the negotiation is being conducted. They are: Canada, Russia, Denmark (Greenland), Norway, the United States, Sweden, Finland, and Iceland. One source has noted that

The Arctic Council is a high-level intergovernmental forum that addresses primarily environmental protection and sustainable development issues in the Arctic region. The eight founding nations (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States) of the 1991 Arctic Environmental Protection Strategy comprise the Member States of the Arctic Council. Six Arctic indigenous groups hold Permanent Participant status, and a number of other countries and organizations are accredited observers. The Council meets every two years at the Ministerial level to coordinate Council activities and oversee the work of the six working groups. Senior Arctic Officials from each member state meet

more frequently to oversee Council operations between Ministerial meetings.⁸⁶³

Each Arctic council nation has its own concerns regarding borders, access to natural resources, sovereignty issues, shipping rights, and other regional factors. The Arctic states bordering the ocean—Canada, Denmark, Iceland, Norway, Russia, and the US—have a 200-nautical-mile economic zone around their coasts. Norway, Russia, Canada, and Denmark have made claims. While much collaborative work has transpired in the Council in the past several years, numerous issues remain outstanding.⁸⁶⁴

One of the most significant Arctic events was the planting of a Russian flag under the North Pole in August 2007. As a result of this development, foreign ministers and other officials representing Canada, Denmark, Norway, Russia, and the United States met in Ilulissat, Greenland on May 28, 2008 and announced the Ilulissat Declaration. The goal of the declaration was to block new attempts to govern the Arctic Ocean and to ensure that future activities were conducted in a peaceful manner.

In addition to planting the flag, Russia has deployed an interesting mix of all types of military forces in support of its diplomatic maneuvering. The Navy, Air Force, Army, Federal Security Service (FSB), and Emergency Ministry (EMERCOM) personnel are all involved in the region. It is clear that Russia's leaders consider the Arctic region to be of major importance and are making an all-out rush to gain influence, if not control, over the region and its operational environment.

In September 2008 Russian Foreign Ministry officials developed the "Basis of RF State Policy in the Arctic for the Period through 2020

⁸⁶³ Downloaded from the US Department of State Website at <http://www.state.gov/e/oes/ocns/opa/arc/ac/>

⁸⁶⁴ "Arctic," accessed from *Wikipedia*, the Free Encyclopedia, at <http://en.wikipedia.org/wiki/Arctic>, on 1 August 2012.

and the Remote Future.” The policy is designed to support other organizations and agreements already in place, such as the Arctic Council, the Barents Euro-Arctic Council (BEAC), the Barents Regional Council (BRC), and the Arctic Economic Forum. The Foreign Ministry’s document shows how Russia was adapting to its emerging operational environment, while providing a warning of potential future military involvement in the region. Specifically, the document describes the conditions, circumstances, and influences that call for the deployment of military capabilities to the region. The document noted that a national interest was at stake, namely the use of the Arctic zone as a strategic resource base of the RF in support of accomplishing socio-economic tasks of the country. In that regard, a chief objective of the policy was as follows:

In the sphere of military security and protection and security of the state border of the Russian Federation lying in the Arctic zone of the Russian Federation [a priority is] providing favorable operational conditions, to include maintaining the necessary combat potential of groupings of general-purpose troops (forces) of the Armed Forces of the Russian Federation, other troops, military force elements, and agencies in this region.⁸⁶⁵

The policy’s principal military and security tasks included the following: the establishment and provision for military security under various conditions; the optimization of a system of integrated environmental monitoring in the Arctic; the development of border agency capabilities in line with the threats to and challenges for the Arctic; the creation of an actively functioning coast guard system to fight terrorism at sea, stop smuggling, and guard aquatic biological resources; the development of a border infrastructure and the technical equipping of

⁸⁶⁵ “*Osnovy gosudarstvennoy politiki Rossiyskoy Federatsii v Arktike na period do 2020 goda i dal’neyshuyu perspektivu* [Basis of RF State Policy in the Arctic for the Period Up to 2020 and the Remote Future],” downloaded from <http://www.scrf.gov.ru> on 19 October 2010.

border agencies; and the creation of a system of integrated surface monitoring.⁸⁶⁶

Since the development of these policy initiatives Russia has been moving full speed ahead to militarize the area. Simultaneously Lavrov and other high officials have been involved in making a series of diplomatic gestures designed to, it appears, cover the buildup, as exposed in the following statements:

- In February 2009 Foreign Ministry Special Envoy Anton Vasilyev stated that the formation of special Arctic troops is not being planned.⁸⁶⁷
- Two months later, Russian Foreign Minister Sergey Lavrov stated that everything will be handled on the basis of existing treaties and legal norms.⁸⁶⁸
- In October 2009 Lavrov noted that in the Arctic, there were no military issues or problems that required a military solution or the presence of military blocs;⁸⁶⁹ and he reiterated this position in July 2011.⁸⁷⁰
- In August 2014, Lavrov stated that Moscow is opposed to the Arctic's militarization and it should not be part of military rhetoric.⁸⁷¹
- One month later, in September 2014, after a two year long buildup of military forces in the region, Russia announced the creation of a 'Sever' (or Northern) Strategic Command in order to defend Russia's Arctic interests.⁸⁷²

⁸⁶⁶ Ibid.

⁸⁶⁷ *Interfax*, 20 April 2009.

⁸⁶⁸ *Interfax-AVN Online*, 29 April 2009.

⁸⁶⁹ *Interfax*, 15 October 2009.

⁸⁷⁰ *Interfax*, 13 July 2011.

⁸⁷¹ *Interfax* (in English), 28 August 2014.

⁸⁷² Aleksandr Yemelyanenko, "Defense Ministry Creating 'Sever' Strategic Command. Navy Deployed to Protect Russia's Interests in the Arctic," *Rossiyskaya Gazeta Online (Russian News Online)*, 10 September 2014.

- On 20 October 2014 Lavrov stated that NATO has no business in the Arctic, since there are no problems requiring NATO's presence there.⁸⁷³
- On 22 December 2014 President Putin said "Once again I will stress that we are not going to militarize the Arctic."⁸⁷⁴
- On 24 December Deputy Defense Minister Anatoliy Antonov stated that Russia's activities in the Arctic are not military in nature and are only aimed at creating the necessary infrastructure to ensure security of the country's national interests and borders, control the situation at sea, and help civilian services ensure the functioning of the NSR.⁸⁷⁵

Such statements over time have exposed this diplomatic cover-up of a major Russian military buildup in the Arctic. Everything Russia told others not to do, Russia did. Trust can easily be lost, and the continued subterfuge in which Russia has participated (first the Arctic, now Ukraine) will ensure difficulties for Russian negotiators in the near future. In addition, Russia proposed creating an Arctic Ministry as a new element of the government apparatus. Dmitry Kobylkin was being considered to head the new ministry.⁸⁷⁶ However, at the moment that impetus seems to have died. A government commission was established on the Russian Arctic instead.

With regard to the Arctic Council, Lavrov has said that the Council will receive observers, but the latter can only join projects in the Council that are approved by its permanent members. Further, the Arctic will not be made the property of all mankind. Interaction is possible but the responsibility must be kept with the eight members of the Council.⁸⁷⁷

⁸⁷³ *Interfax* (in English), 20 October 2014.

⁸⁷⁴ *Interfax* (in English), 22 December 2014.

⁸⁷⁵ *Interfax*, 24 December 2014.

⁸⁷⁶ *The Moscow Times Online* (in English), 20 November 2014.

⁸⁷⁷ *Interfax* (in English), 24 August 2015.

An *Interfax* report in September 2015 noted that the Russian delegation to a conference on climate change wanted a broadening of cooperation between the Arctic states, joint projects, and prevention of its politicization, among other priorities.⁸⁷⁸

And, with regard to the NSR, Russia wants, as Deputy Prime Minister Dmitry Rogozin has stated, more control over it. “We must entirely be hosts of the NSR,” he noted on one occasion.⁸⁷⁹ The US, on the other hand, along with other Western nations, would rather see the NSR internationalized.

After conducting exercise “Arktika-2000,” Russia stated that the Lomonosov and Mendeleev undersea ridges are but continuations of the continent and that Russia’s continental shelf must therefore be expanded some 1.2 million square kilometers. Two Arctic expeditions in 2007 further studied the oceanic shelf of the Arctic Ocean. Russian author Alexander Goltz noted the following:

If successful, this theoretically would provide Moscow unbelievable wealth. It would have at its disposal the Northern Sea Route (NSR), which, together with the Northwest Passage, would give Russia the opportunity to control the shortest route between North America, Europe, and Asia. Moreover, if Moscow can prove its right to own a significant part of the Arctic Ocean, it will be allowed to develop oil and gas deposits. Experts estimate oil and gas deposits in the Russian part of the Arctic at 25 percent of the world’s hydrocarbon reserves...⁸⁸⁰

⁸⁷⁸ *Interfax* (in English), 3 September 2015.

⁸⁷⁹ *Interfax* (in English), 25 August 2015.

⁸⁸⁰ Alexander Goltz, “The Arctic: A Clash of Interests or Clash of Ambitions,” in *Russia in the Arctic*, Stephen J. Blank, editor, July 2011, p. 48.

The NSR has been used for many years by Russia (and the former Soviet Union). The route enables savings in time and fuel for important trade with the rest of Asia. The route has been kept free in many instances due to the fleet of Russian ice breakers, which have been in service since the early 1900s. Today there are a number of legal issues concerning the route, to include potential transit fees and navigation rights. The most important item is that the NSR saves businesses time. It takes, according to some estimates, 39 days for a ship in Murmansk, Russia to transit the Suez Canal and arrive in Japan. It takes 18.5 days using the NSR. Savings in time and money are immense.

In 2009 Yuri Morozov, a professor at the Academy of Military Sciences and leading research fellow at the Institute for Far Eastern Studies and the Institute for U.S. and Canadian Studies, Russian Academy of Sciences, wrote on the Arctic for the Carnegie Council. A sectorial division of the region, he noted, “has become a recognized reality,” although calls for its revision have been heard. Any revision of existing norms and principles will, in Morozov’s opinion, carry the potential for conflict. The area has many problems, such as environmental challenges (industrial waste disposal, etc.), transarctic shipping issues (replacing obsolete icebreakers, developing coastal port infrastructure, etc.), the demarcation of polar possessions (providing a UN commission with scientific proof that the Lomonosov and Mendeleev ridges are part of the North Asian continental margin and thus Russia’s Arctic shelf), and the potential militarization of the area (with “Scandinavian blocs” or NATO).⁸⁸¹ See Figure One.

⁸⁸¹ Yuri Morozov, “The Arctic: The Next ‘Hot Spot’ of International Relations or a Region of Cooperation?” Carnegie Council paper, 16 December 2009, as downloaded from <http://www.carnegiecouncil.org/resources>.



Figure One, from Yuri Morozov, “The Arctic: The Next ‘Hot Spot’ of International Relations or a Region of Cooperation?” The Carnegie Council, December 16 2009.

Putin’s Interest in and Design for the Area

When Russian President Vladimir Putin was Prime Minister he was already demonstrating his personal interest in the region, taking part in an International Arctic Forum in Moscow in September 2010 (Putin also participated in the Interregional Conference “The Development of the Far East, 2010-2012” in December 2010). It is easy to understand his focus on an area with a coast that is 22,600 kilometers long and that provides nearly 11 percent of Russia’s national revenue as well as twenty-two percent of Russian exports (90 percent of the nickel and cobalt, 60 percent of copper, 96 percent of the platinum group of metals, and 100 percent of barium sulfate and phosphate rock are extracted and produced here).⁸⁸²

⁸⁸² Oleg Groznyy, “The Arctic Outpost,” *Krasnaya Zvezda Online (Red Star Online)*, 25 April 2014.

As Prime Minister, Putin outlined Russia's Arctic priorities at the 2010 Arctic Forum. He stated that the creation of decent living conditions for people of the Arctic, to include taking into consideration their traditions and economic realities, was his first priority. His second priority was to support new zones of economic growth and to attract to the region new sectors of business and investment, both foreign and domestic. Finally, he saw as another priority a major investment in the scientific nature of the region's conservation infrastructure.⁸⁸³ What he failed to address was the significant military buildup that was accompanying these goals.

In particular, there was a campaign underway to establish bases on specific islands. This indicates General Staff investment in the planning. Those islands offer Western analysts a look at the General Staff's strategy to hold habitable territory and control the region. The Russian military has begun construction on a number of airfields on several islands and specific equipment has been developed for the region. In most cases, this is just the refurbishment of bases that existed during the time of the Soviet Union but were abandoned after the latter's fall. This intense military spending indicates that President Putin has every intention to make good on his conviction that the Arctic has been under Russian sovereignty for years and that "This is how this will be in the future."⁸⁸⁴ A nation doesn't spend enormous amounts of money on a barren wasteland unless it intends to inhabit it and fight over it.

Putin appears to have made good on his claim and is continuing to expand Russian resources there. By the end of 2014, he had promises from Rosatom (the state's nuclear power corporation) to prepare a draft program for addressing electricity and technological supplies, drawn up jointly with the Federal Agency for Special Construction (Spetsstroy). The question of financing the construction of a low-capacity reactor for

⁸⁸³ *ITAR-TASS*, 23 September 2010.

⁸⁸⁴ *Interfax* (in English), 3 October 2013.

the Arctic is also being discussed.⁸⁸⁵ A federal center for the comprehensive study of the Arctic has been proposed as well for Arkhangelsk.⁸⁸⁶

Islands of Importance

There are several islands of importance in the Arctic region to Russia. Those most often mentioned in the press are the following: the Novaya Zemlya and Franz Josef Land archipelagos (Image One); the Novosibirsk (New Siberian) Islands, especially the Kotelnyy Island in this grouping (Image Two); and Wrangel Island (Image Three). These are the areas of intense focus for the positioning of new military bases. Images of these islands and their location off the northern Russian coastline are located after the following paragraph.

The *BBC*, reporting on the Arctic, noted that Russia plans to build thirteen airfields and ten air-defense radar stations in the Arctic. The report cited National Defense Control Center representative Mikhail Mizintsev, who noted that more special units and drills are also planned for the region. The *BBC* report also cited a Channel One Russian correspondent who stated that Russia is not militarizing the Arctic but just restoring its former greatness in the area. The 2015 budget has been amended to cover additional Defense Ministry spending on the Arctic, Finance Minister Anton Siluanov told Putin on 19 November 2014. Finally, the report noted that Russia may increase the state media's output on the Arctic, as it has done with Ukraine—"perhaps even a new front in Moscow's 'information war' with the West."⁸⁸⁷

⁸⁸⁵ *Interfax* (in English), 2 December 2014.

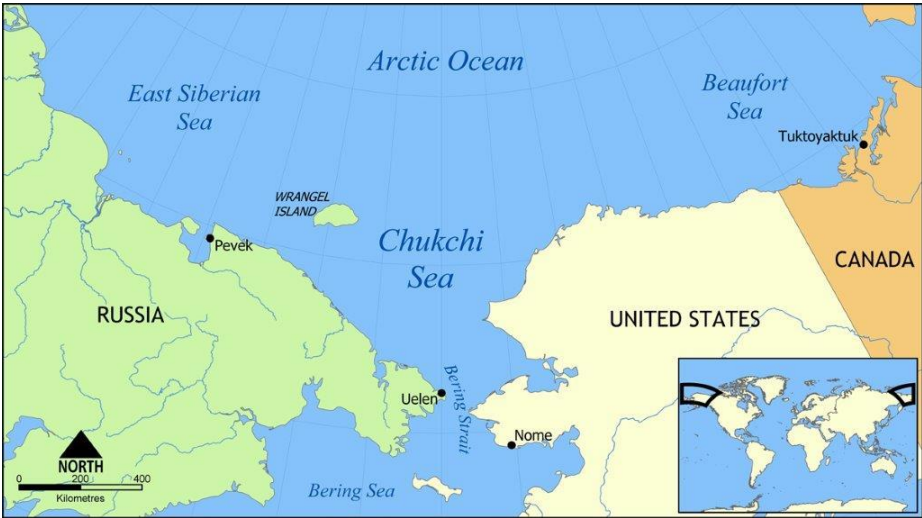
⁸⁸⁶ *Interfax* (in English), 24 October 2014.

⁸⁸⁷ *BBC Monitoring*, 17 December 2014.



Image One⁸⁸⁸

⁸⁸⁸ http://en.wikipedia.org/wiki/Kara_Sea



Images Two and Three⁸⁸⁹

⁸⁸⁹ http://upload.wikimedia.org/wikipedia/commons/5/5a/Chukchi_Sea_map.png and http://en.wikipedia.org/wiki/New_Siberian_Islands

Military Developments

Russian Foreign Ministry statements appear in hindsight to have been aimed at minimizing “foreign” military influence in the Arctic, since there have been a host of Russian diplomatic attempts to outline Russian interests and claims to the area. Russian diplomats have drawn an imaginary line from the North Pole to the edges of the Murmansk and Chukotka regions, thereby forming a triangle in which Russia asserts its claim over the waters therein. This would add, as noted, some 1.2 million square kilometers of the Arctic to Russian influence and rule.

Alexander Goltz indicated that a symbolic airborne landing at the North Pole in 2009 (marking the 60th anniversary of the visit of a group of Soviet scientists there), occasional Arctic patrolling of attack submarines, and other such activities has signaled a larger Russian military interest in the region than diplomats were reporting.⁸⁹⁰ The most important policy statement affecting the military was the aforementioned “Basis of RF State Policy in the Arctic for the Period through 2020 and the Remote Future,” which recommended the creation of a general-purpose force in Russia’s Arctic zone to ensure military security under various conditions.⁸⁹¹ In 2009, Russia’s borders in the region were secured by the Arctic Regional Border Directorate of the FSB. It included the Linakhamarskiy Division of border guard ships, a separate Arctic aviation regiment, a training center, and other border detachments.⁸⁹²

An *ITAR-TASS* report in March 2009 noted that Russia’s leaders were getting over their symbolic gesture of planting a flag on the North Pole’s ocean floor and moving on to other issues. Then President Dmitrii Medvedev called for developing the Northern Sea Route, building up-to-date ports, and solving ecological problems. Admiral Vyacheslav Popov, the Russian Northern Fleet Commander before 2002, stated that Russia

⁸⁹⁰ Goltz, p. 44.

⁸⁹¹ Aleksandr Chuykov, “The Frozen Arctic Strategy,” *Argumenty Nedeli (The Weekly Debate)*, 2 April 2009.

⁸⁹² *Ibid.*

should augment its right to control the Arctic shelf with technological potential and a military contingent. Space forces should survey the shelf, and equipment should be placed on the oceanic coast. Naval and air bases should be restored in the Arctic as well.⁸⁹³ Many of these suggestions seem to have been implemented.

During Soviet times the Arctic was a national treasure for several reasons. First, it represented a “Strategic Northern Bastion” for the Soviet Navy where its submarine missile cruisers could hide from a potential enemy under the meters-thick ice. Nuclear submarines would be a natural target if war broke out. Naval experts constructed a detailed map of the underwater areas of the Arctic and measured depths, sea currents, and ice thickness for new routes where strategic submarines could conduct patrols or theoretically launch missiles. Second, it contained a host of nonferrous and rare earth metals, as well as timber, oil products, furs, and so on. Unfortunately, as Soviet troops withdrew after the dissolution of the Soviet Union, serious problems arose. As the armed forces departed the area, entire cities were threatened with extinction, since aircraft, jobs, transport, logistics, and doctors that helped civilians had often come from the military bases. Further, smugglers moved in on the now uncontrolled Northern Sea Route.⁸⁹⁴

Today, it is clear that the Arctic is coming to life again. The discovery of vast oil resources has resulted in an intense quarrel over who maintains possession of the continental shelf on which much of the deposits reside. The Defense Ministry’s military preparation of the Arctic has prevailed over the Russian Federation (RF) Foreign Ministry’s diplomatic gestures, thereby reintroducing many of the jobs and commodities that had departed in the early 1990s. The current Russian military presence in the Arctic includes long-range nuclear bomber patrols, Borei submarines, Emergency Ministry personnel, special air squads, land brigades, and potential airborne missions (among

⁸⁹³ *ITAR-TASS*, 30 March 2009.

⁸⁹⁴ Yuri Golotyuk, “Safeguarding the Arctic,” *Russia in Global Affairs*, No 3 July-September 2008, at http://eng.globalaffairs.ru/print/number/n_11281.

other forces), as well as the reopening of several Arctic military bases. Special Envoy Vasilyev, reversing his 2009 statement cited above, noted at an international conference in 2012 that military presence is required to help exercise sovereignty, protect natural resources, and enhance security. States are simply exercising their sovereignty and not the area's militarization,⁸⁹⁵ he noted, an interesting Russian diplomatic reinterpretation of evolving scenarios. Earlier, in 2011, then Prime Minister Vladimir Putin stated that military capabilities must be built up along the NSR in the Arctic, noting that an entire series of support bases will be created.⁸⁹⁶

Military journals and newspapers have written extensively about the region. The military-industrial complex's journal *Military-Industrial Courier*, the army's *Red Star* and *Military Thought*, and the Navy's *Naval Digest* all have published numerous articles on the region. Perhaps of even greater importance, a special Arctic satellite monitoring system, the *Arktika* Space System, is under development, according to the Federal Space Agency of Russia. The system will help ensure safe flight operations, effective navigation, and precise weather information for the Arctic.

Noted below in Part Two are the more recent developments in 2014 and 2015. They demonstrate the in-depth nature of Russia's military concern over potential threats in the area; the development of an infrastructure plan to control the NSR through military bases on specific islands; and the development of new "Arctic approved" equipment.

Part Two

Military Developments in 2014

[Note: This section and the section covering 2015 list several pieces of nomenclature, but no further explanation of the characteristics, purpose, or parameters of the equipment are offered.]

⁸⁹⁵ *Interfax*, 12 April 2012.

⁸⁹⁶ *Interfax*, 8 November 2011.

While there were several very important developments in the Arctic region in 2014, the most important was organizational. It was noted that the Northern Fleet would be taken out of the Western Military District and made a part of the newly formulated (September 2014) Sever (North) Joint Strategic Command. Perhaps most important, the commander of the Northern Fleet has allegedly been designated to take charge of the North Joint Strategic Command.⁸⁹⁷ This change to a “Northern Fleet-Combined Strategic Command [SF-OSK]” was first announced in February and only implemented in September. Its mission is to defend Russian interests along the NSR, to protect fishing resources, deposits, and hydrocarbons, and, most important of all, ensure the security in the north of the country.⁸⁹⁸

A second key development was the technological upgrades of several organizations. One important upgrade was the installation on Kotelnyy Island of video links installed by the Voyentelekom Company. The links, established with leading Kirov Military–Medical Academy specialists (St. Petersburg), will provide round-the-clock support for servicemen there in medical need. Satellite communication terminals have been installed. Other equipment from Voyentelekom make it possible to receive aircraft in complex weather conditions under day or nighttime conditions. Telephonic and telegraphic communications with the mainland are possible through an R-441LM satellite station. Online videoconferencing is available and Iridium satellite-linked terminals enable emergency communications. Each servicemen has a personal R-168-01 radio set for maintaining communications within the airfield. Finally the video-link enables sessions between the airfield and the

⁸⁹⁷ Sergey Ishchenko, “Powder Keg Beneath the Arctic Ice. Why MiG-31BMs Are Being Redeployed to the Novaya Zemlya Archipelago,” *Svobodnaya Pressa (Free Press)*, 19 September 2014.

⁸⁹⁸ “Northern Fleet and Arctic Brigades to Form New Military Structure” and “Experts: The Creation of a New Russian Federation Military Structure in the Arctic is Logical,” *RIA Novosti Online (RIA News Online)*, 17 February 2014.

Defense Ministry Situation Center.⁸⁹⁹ It should be expected that all of the islands and outposts will soon be furnished with corresponding capabilities.

Another interesting development was the description of a state-of-the-art rapidly-erected independent closed-cycle basic necessities field camp. Designed for 300 people, each tent in the camp is designed for 16 men and keeps people warm even when the outside temperature is minus 50 Celsius. The snow load of the tents is over 100kg/square meter and the wind load is over 120 km/hour. The automatic heating system and automatic autonomous power supply ensure general comfort.⁹⁰⁰

Other key developments that took place in 2014 are listed here in the order in which they were reported in the media. These key items are then followed by a more general summary of developments that took place in the Navy, Air Force, Ground Forces, and other military units during the past year:

- A Pantsir-S-1 combined medium range surface-to-air missile and anti-aircraft artillery system has been tested for use beyond the Polar Circle to help control missile threats to Russia.⁹⁰¹
- The Murmansk region's rescue center (part of an Emergency Situations Ministry plan) will have rescue vehicles, wheeled and tracked off-roaders, snow tractors, hovercraft, and air-cushion ships. It will operate 24/7 with 83 people.⁹⁰²
- Cadets are being trained at the Far East Higher Military Command School to serve as "Arctic officers" in motorized rifle subunits as commanders in

⁸⁹⁹ "Voyentelekom Specialists are Helping the Russian Military to Develop the Arctic," *Interfax-AVN Online*, 24 January 2014.

⁹⁰⁰ "Three Hundred Paratroopers Land in the North of Yakutia," *Interfax-AVN Online*, 13 March 2014.

⁹⁰¹ *Interfax-AVN Online* (in English), 20 January 2014.

⁹⁰² *Interfax-AVN Online* (in English), 5 February 2014.

Arctic brigades. Arctic first aid, avalanche responses, rescue missions, and assorted living conditions (igloos, wigwams, mountain tents) and equipment (snowmobiles) are taught. Good physical conditioning is a must.⁹⁰³

- The 98th Ivanovo airborne division dropped a 350 man airborne battalion onto Kotelnyy Island's airfield using Arbalet guided parachute systems.⁹⁰⁴ Near Franz Josef Land, Ivanovo airborne reconnaissance troops are checking the state of drifting ice flows to determine areas for landing people and cargoes in case of search and rescue operations⁹⁰⁵(plane crashes, etc.); and testing new polar uniforms that can withstand temperatures of minus 50 degrees Celsius.⁹⁰⁶
- Artillery and reconnaissance of the Northern Fleet's coastal forces recently conducted 150 training sessions. Grad multiple rocket launchers, Gvozdika and Akatsiya self-propelled howitzers, and Nona and Rapira cannons were used, with half of the exercises at nighttime. Patrols, ambushes, raids and state-of-the-art reconnaissance techniques were practiced.⁹⁰⁷
- Granat, Zastava, and Orlan unmanned air vehicles (UAVs), with ranges of 10-150 kilometers, were operated by the Northern Fleet's Separate Motorized Rifle Brigade of Coastal Troops.⁹⁰⁸

⁹⁰³ Nadezhda Doronina, "The Arctic Assault Force: DVVKU is Training Unique Military Specialists for Duty in the Country's Northern Territories," *MK Online (Moscow Komsomol Online)*, 13 February 2014.

⁹⁰⁴ *Interfax* (in English), 14 March 2014.

⁹⁰⁵ "Airborne Troops Reconnaissance Group Will Evaluate Possibilities of Landing People and Cargoes in the Arctic," *Ministry of Defense of the Russian Federation Website*, 4 April 2014.

⁹⁰⁶ *ITAR-TASS*, 7 April 2014.

⁹⁰⁷ *Interfax-AVN Online* (in English), 18 March 2014.

⁹⁰⁸ *Interfax* (in English), 7 April 2014.

- Airborne troops landed near drifting ice base Barneo, near the North Pole, to practice the rescue of a polar expedition in distress under extreme conditions.⁹⁰⁹
- Mi-26 helicopters transported quad bikes, tractors, and tanker trucks to the Temp airfield on Kotelny from the Tiksi airfield in Yakutia.⁹¹⁰
- Russia plans to build an Arctic combat training center according to defense minister Army General Sergey Shoygu. Pilots, sailors, artillerymen, and others will all be part of the center.
- An infrastructure is being developed at the Central Test Range in the Novaya Zemlya archipelago. The Rogachevo airfield on Kotelnny Island will assist in the extraction of lead-zinc ore and the development of the Arctic shelf.⁹¹¹
- The Russian Navy flag was raised on Wrangel Island, establishing the first Russian Pacific Fleet base.⁹¹² It was reported that Wrangel Island (a UNESCO World Heritage site) and Cape Otto Shmidt on the mainland will receive the Polyarnaya Zvezda (Polar Star, the form of the complex being a star) nuclear-powered modular military garrisons, to be completed by 1 October.⁹¹³
- The Northern Fleet is studying the most northerly extension of Russian sovereignty, the Franz Josef Land archipelago. They are correcting navigation charts and verifying coordinates.⁹¹⁴

⁹⁰⁹ *Interfax* (in English), 8 April 2014.

⁹¹⁰ *Interfax* (in English), 14 May 2014.

⁹¹¹ “Novaya Zemlya’s New Life,” *Krasnaya Zvezda Online (Red Star Online)*, 19 August 2014.

⁹¹² *Interfax-AVN Online*, 20 August 2014.

⁹¹³ Aleksandr Filimonenko, “A Canopy Protects the ‘Polar Star,’” *Rossiyskaya Gazeta Online (Russian News Online)*, 4 September 2014.

⁹¹⁴ “Northern Fleet’s Hydrographic Survey Ship the Seleznev Leaves on Arctic Expedition,” *Ministry of Defense of the Russian Federation’s Website*, 25 August 2014.

- Russian logistic support will include an 18-month supply of fuel, provisions, clothing, and medicines where troops are located.⁹¹⁵
- During the September Vostok-2014 exercise, airborne and naval infantry troops from the Eastern Military District landed on Wrangel Island, and Iskander-M operational tactical systems were launched.⁹¹⁶ The Pantsir-S1 coastal missile system commenced permanent operation on the Kotelnny Peninsula. It now has a medium range capability, a target detection location capability (a 1.5-times detection increase), and can fire on the move.⁹¹⁷
- The military town Severnyy Klever (Northern Clover), designed in the shape of a clover or trefoil, was constructed on Kotelnny Island in the Novosibirsk Islands to help defend Russian interests from NATO encroachment.⁹¹⁸ Another report noted that Russia hopes to construct six new bases throughout the Arctic.⁹¹⁹
- The Eastern Military District, which monitors military infrastructure development in the district's Arctic zone of responsibility, has begun forming a UAV subunit to ensure security over marine shipping and to conduct aerial reconnaissance over its zone of responsibility.⁹²⁰
- The Northern Fleet has an underwater saboteur force that will soon acquire unmanned vehicles. The force

⁹¹⁵ "Russian Defense Ministry Will Deliver Equipment and Armaments to the Arctic before the End of September," *RBK Daily Online*, 8 September 2014.

⁹¹⁶ "Russian Paratroopers Land on Wrangel Island," *Polit.ru*, 20 September 2014.

⁹¹⁷ Olga Bozhyeva, "New Pantsir Will Down Aircraft While on the Move," *MK Online (Moscow Komsomolets Online)*, 15 November 2014.

⁹¹⁸ *RIA Novosti (RIA News)*, 25 September 2014.

⁹¹⁹ Unattributed report, *The Moscow Times Online* (in English), 1 October 2014.

⁹²⁰ "In the Interests of Developing the Arctic, an Unmanned Air Vehicle Company Has Been Formed in Chukotka," *Interfax-AVN Online*, 13 November 2014.

already has BL-680 fast boats and uses sniper rifles and grenades. Their task is to guard the coastland and to ensure the safe entry and egress of the fleet's submarines from the coast.⁹²¹

- In 2015 an S-400 Triumph air defense regiment will be formed in the Arctic on the Novaya Zemlya Archipelago.⁹²²
- The Emergency Situations Ministry will eventually establish ten rescue centers in Russia's Arctic.⁹²³

General missions for the inter-service force that is being created for operations in the Arctic include power projection, deterrence, and control over promising oil and gas reserves, among others. These missions are part of a geopolitical strategy to maintain control over the region. This will require the construction of many facilities along the NSR. And, for the first time, Russia's December 2014 military doctrine noted that a military priority was to protect Russia's national interests in the Arctic.

The Advanced Research Foundation of Russia (the equivalent of the US's Defense Advanced Research Projects Agency or DARPA) is also working on Arctic technologies. The foundation's focus is on discovering, recovering, and transporting minerals; working under the ice, protecting the infrastructure, and developing underwater robotics and other autonomous devices that can protect infrastructure, monitor water bodies, detect and track a potential enemy, and destroy them if necessary.⁹²⁴

⁹²¹ "Western Military District: Northern Fleet's Special-Purpose Forces Working on Tasks Involving Protection of Bases," *RIA Novosti (RIA News)*, 12 December 2014.

⁹²² *TASS*, 30 December 2014.

⁹²³ *Interfax* (in English), 5 January 2015.

⁹²⁴ Interview with Vitaliy Davydov, "Vitaliy Davydov Says 'We are Decreasing the Need for a Person's Presence on the Battlefield by Leaps and Bounds,'" *Voyenno-Promyshlennyi Kuryer Online (Military-Industrial Courier Online)*, VPK.Name, 22 October 2014.

Many Russian analysts blame the interests of NATO countries in the region for the extended missions of Russian forces there, especially in light of the demilitarized status of the Russian North.⁹²⁵ In reality, it appears that the discovery of resources and their potential extraction are to blame for Russia's movement back to the Arctic, not NATO.

Navy, 2014

The Navy, for many years now, has been the center of attention for Arctic missions. This is because it is their job to clear and ensure the safety of the NSR, among many other missions such as providing cover for nuclear forces in restricted patrol areas and movement routes, controlling ice-free Arctic waters, and covering for troops against an adversary's reinforcements or attempts to disrupt supply routes or mineral exploitations. Fleet exercises in the Arctic involve minesweepers, submarine escort duties, antisubmarine ships, and naval aviation. Landing craft deliver mobile coastal missile systems to beaches during exercises.⁹²⁶

Russia's Northern Fleet has stationed one of its newest nuclear classes of attack submarines, the Yasen, in the area. The Yasen Severodvinsk left its port in September to join an exercise. Maintenance on the Yasen will be done at the Zapadnaya Litsa garrison, according to reports, where the moorings for the Akulas are still maintained. Its permanent assignment will be on the Kola Peninsula, some 45 kilometers from Norway's border. Other Yasen-class submarines will follow to phase out the Akula and Alfa Class attack submarines of the Soviet era.⁹²⁷ New-generation nuclear submarines will have missiles, torpedoes, robots, and remote-controlled submersibles. The latter can remain in an area and create a semblance of the submarine's presence, while the

⁹²⁵ *RIA Novosti (RIA News)*.

⁹²⁶ Aleksandr Yemelyanenko, "Defense Ministry Creating 'Sever' Strategic Command. Navy Deployed to Protect Russia's Interests in Arctic," *Rossiyskaya Gazeta Online (Russian News Online)*, 10 September 2014.

⁹²⁷ Aleksandr Yemelyanenko, "The Nuclear Submarine Severodvinsk Will Serve near the Border with Norway," *Rossiyskaya Gazeta Online (Russian News Online)*, 11 September 2014.

submarine actually moves out of that area. It is not impossible for such vehicles or robots to syphon off information from underwater cables, the article notes, but the main purpose remains to monitor the operational situation and protect the submarine.⁹²⁸

Submarines are not the only item under development. There are hopes of procuring over fifteen Project 22350 frigates in the near future. The ships have various types of weapons that make their fighting capacity universal, and they can resolve a broad range of tasks to fight above-water ships, submarines, and aviation.⁹²⁹ A “mosquito fleet” of hit-and-run air-cushion vessels is planned. They are of all types and dimensions, with some able to carry three tanks or 140 men and 10 armored personnel carriers. They can move on sea, land, and ice at speeds of up to 60 knots. These ships can carry a Titanit radar suite, an AK-725 artillery mount, Osa-MA anti-aircraft missile systems, and the Malakhit, Termit-E, or Oniks PKR. When equipped with OAS (sonar), Shkval-E torpedoes, depth charges, and rocket-assisted antisubmarine warfare systems, it can serve as an antisubmarine vessel.⁹³⁰

The development of icebreakers is another challenge. Navies need not only icebreakers for a fleet but also to serve as full-fledged combat entities. The vessel could either escort or operate independently. Two or three squadrons of these icebreakers would be nice. Its armament system would be similar to that of a guided missile cruiser.⁹³¹ In 2015 the Project 21280 will be developed, a new-generation icebreaker. It will be built for the Northern Fleet, with a cruising range of 12,000 miles and

⁹²⁸ Anton Mardasov, “The Russian Federation Navy Has Rejected Small Sabotage Submarines but Will Equip Nuclear Cruisers with Drones,” *Svobodnaya Pressa (Free Press)*, 15 December 2014.

⁹²⁹ *Interfax* (in English), 12 December 2014.

⁹³⁰ Dmitriy Verkhoturov, “National Strategy Institute Draft. Russia’s Arctic Fleet: New Types of Ships,” *Agentstvo Politicheskikh Novostey (Political News Agency)*, 15 December 2014.

⁹³¹ *Ibid.*

the ability to break through ice up to 31.5 inches in thickness.⁹³² One icebreaker will be received by the Navy in the first half of 2015. The first Elbrus ARC4 ice-class logistic support vessel of Project 23120 will be built and before the end of 2016, the Captain Shevchenko and MB-75 will be built.⁹³³

As part of the reorganization process, a Northern Fleet Marine Regiment, the 61st Separate Kirkenes Red Banner Marine Regiment, will be reconstituted as a separate brigade. The regiment took part in the fighting in the North Caucasus in both 1995 and from 1999-2000. It thus was most likely one of the first units in the fight for Chechnya both times the war exploded on the scene.⁹³⁴ In January 2015 it was reported that a separate marine brigade (unnamed) of the Northern Fleet will train specifically for Arctic operations. The marines will conduct parachute jumps, fire artillery and light weapons at ranges, hold tactical and special drills, and conduct other exercises under Arctic conditions.⁹³⁵

Northern Fleet rescuers took part in the Arktika-2014 exercises that took place in August. The rescuers included the following ministries, directorates, and agencies: the Russian Ministry of Transport; FSB Border Directorates; Ministry for the Affairs of Civil Defense; Emergency Situation and the Elimination of Natural Disasters Ministry; the Federal Agency for Maritime and River Transport; and the Federal Air Transport Agency.⁹³⁶

The Navy also owns the military publication that has continuously followed Arctic developments for the past several years, *Morskoy Sbornik (Naval Journal)*. Listed below are the issues and

⁹³² Koryakin, "New-Generation Icebreaker to be Built for Russian Navy," *Rossiyskaya Gazeta Online (Russian News Online)*, 10 November 2014.

⁹³³ *Interfax* (in English), 1 December 2014.

⁹³⁴ *Murmansk b-port.com*, 27 November 2014.

⁹³⁵ *Interfax* (in English), 8 January 2015.

⁹³⁶ "Northern Fleet Rescuers Prepare for Arktika-2014 Exercise," *Ministry of Defense of the Russian Federation Online*, 31 July 2014.

articles from Numbers 1, 4, 5, 7, and 8 that covered Arctic issues in 2014:

No. 1: “To Franz-Josef Land”⁹³⁷

No. 4: “On Some Problems of Forming and Realizing the National Sea Policy of the Russian Federation at the End of the 20th—Beginning of the 21st Century” (refers to the Arctic)

No. 5: “Arctic Communications and Ensuring the Territorial Integrity of Russia”; “The Military-Political Situation in the Arctic and the Perspectives of its Development”; “The Defense and Economic Peculiarities of the Delineation of Sea Space of the Arctic”; “The Normative, Economic, and Defense Factors of Forming the Arctic Sea Policy”; “The Development of Sea Education with the Coordination of Defense and Economic Activities in the Arctic”; and “Shipping on the Northern Sea Route and the Development of Shipbuilding in Russia”⁹³⁸

No. 7: “The Development of the Principles of Ensuring the National Security of the Russian Federation in the Arctic”⁹³⁹

No. 8: “The National Interests of Russia and the Economy of Sea Communications in the Arctic”⁹⁴⁰

Radars, 2014

The Spetsstroy Engineering Enterprise has installed five stationary radar facilities in the Arctic, one each on Sredniy Island on the Severnaya Zemlya peninsula; on Zemlya Aleksandry Island in the Franz Josef archipelago; on Wrangel Island and Cape Shmidt in the Chukot Autonomous Okrug; and in Rogachevo on Yuzhnyy Island in the

⁹³⁷ Table of Contents, *Morskoy Sbornik (Naval Journal)*, January 2014, No. 1, p. 2.

⁹³⁸ Table of Contents, *Morskoy Sbornik (Naval Journal)*, May 2014, No. 5, p. 2.

⁹³⁹ Table of Contents, *Morskoy Sbornik (Naval Journal)*, July 2014, No. 7, p. 2.

⁹⁴⁰ Table of Contents, *Morskoy Sbornik (Naval Journal)*, August 2014, No. 8, p. 2.

Novaya Zemlya archipelago. These five points will have an air defense radar and a dispatch point. Airspace movements that are detected will be transmitted to the Air Defense command post in Moscow Oblast.⁹⁴¹

Air Force, 2014

Air Force missions include covering economic activity such as ship convoys as well as engaging an adversary's strategic bombers or cruise missiles in flight. If conflict erupts then fighters will be used to disrupt the command and control of enemy troops, hit adversary aircraft or nuclear missile assets, or cover friendly troop movement to objectives.⁹⁴² An aviation group of MiG-31 interceptors is deployed in Rogachevo as well as at Amderma-2 airfield. Aviation will carry out reconnaissance and stop violations of Russia's territorial waters.⁹⁴³ Further, the Rogachevo Airfield has recently been prepared on the Novaya Zemlya archipelago to receive aircraft such as the MiG-31BM fighter-interceptor.⁹⁴⁴ Other airfields that are being restored are the Temp airfield on Kotelnyy, and the Tiksi, Naryan-Mar, Alykel, Amderma, Nagurskaya, and Anadyr airfields.⁹⁴⁵ Numerous air exercises, involving the dropping of bombs against simulated enemies, have taken place in the Arctic, where Su-24M bombers are covered from the air by MiG-31BM fighter-interceptors.

Ground Elements, 2014

Several specific units have been designated to serve with ground forces in the Arctic. Elements so identified include those from the Murmansk and Arkhangelsk oblasts, which are designed to help fill out the new joint command. These units are the 1st Air and Space Defense

⁹⁴¹ Aleksey Krivoruchek, "Russia Will Reestablish Air Defense Systems and Airfields in the Arctic. Reestablishment of Discarded Aviation Infrastructure Will Cost R6 Billion," *Izvestiya Online (News Online)*, 2 July 2014.

⁹⁴² Mikhail Khodarenok, "The Scramble for the Arctic," *Voyenno-Promyshlennyy Kuryer Online (Military-Industrial Courier Online)*, 25 December 2013.

⁹⁴³ Aleksey Krivoruchek, "Russia Will Reestablish Air Defense Systems and Airfields in the Arctic..." *Izvestiya Online (News Online)*, 2 July 2014.

⁹⁴⁴ "Defense Ministry Airfield..."

⁹⁴⁵ Anastasiya Novak, "Russia's Northern Might," *Polit.ru*, 14 July 2014.

Troops, the 531st, 583rd, and 1258th air defense missile regiments, the 331st and 332nd radio-technical regiments, and other subunits. It is thought that the command will interact with the Northwest Regional Command of the Ministry of Interior Troops and border directorates of the Federal Security Service.⁹⁴⁶ A signals intelligence unit has been established in Alakurtti in Murmansk Oblast. It is located 50 kilometers from Finland's border, 300 kilometers from the Arctic Ocean, and 90 kilometers from the White Sea. It will be used to monitor foreign movements by air and sea in the north.⁹⁴⁷

Airborne troop commander Colonel-General Vladimir Shamanov stated in August that the airborne does not have a permanent plan for its presence in the Arctic. However, Russia plans an international exercise with Belarussian forces in 2015 and is establishing a training center in the Pechenga area along with ground forces and marines.⁹⁴⁸ In the past three years, several additional airborne exercises have taken place in the Arctic region and during the recent Vostok-2014 massive exercise in the east, airborne units were deployed to training ranges in the north to fulfill "tasks under conditions of the extreme north."⁹⁴⁹ Airborne troops will be outfitted with the BMD-4M, the airborne version of the BMP-3, and the BTR-MDM air assault transport vehicle.⁹⁵⁰ The airborne is thus ready to fulfill an Arctic mission if required.

Another report noted that the 99th Tactical Group, whose composition has not yet been divulged, will be deployed on Kotelnyy Island (where the Temp Airfield is located). The 80th Separate Motorized

⁹⁴⁶ Vladimir Gundarov, "Russia's New Line of Defense Will Run via the North Pole. A Joint Strategic Command is Being Formed for the Arctic," *Nezavisimaya Gazeta Online (Independent News Online)*, 11 September 2014.

⁹⁴⁷ Aleksey Krivoruchek, "Defense Ministry Returns Naval Intelligence to Border with Finland," *Izvestiya Online (News Online)*, 13 March 2014.

⁹⁴⁸ *Interfax* (in English), 1 August 2014.

⁹⁴⁹ "VDV Airborne Assault Formations from Buryatia and the Primorskiy Kray Begin Fulfilling Tasks under Conditions of the Extreme North," *Ministry of Defense of the Russian Federation Website*, 19 September 2014.

⁹⁵⁰ *Interfax-AVN Online*, 5 December 2013.

Rifle Brigade will be in the village of Alakurtti in the Murmansk oblast, and radar posts and aircraft guidance points will be in several locations, to include Franz Josef archipelago, Novaya Zemlya, Wrangel Island, and Cape Schmidt.⁹⁵¹ It should be formed by the end of March 2015. The brigades will patrol the coast and guard facilities there, support the passage of ships along the NSR, and demonstrate a military presence in the region.⁹⁵²

A massive cleanup is underway on Wrangel Island, as debris is removed and a modular settlement established. The special transparent dome will not only have household services and a sports hall and sauna but also a psychological recuperation room.⁹⁵³ By 2016 it is thought that a second motor-rifle brigade will be established in the Yamalo-Nenets Autonomous Okrug. Like the 80th brigade, the mission will be to patrol coastal areas, provide support to ships along the NSR, and “demonstrate” Russia’s military presence in the Arctic.⁹⁵⁴

Military units will be furnished with “off-highway” vehicles, such as double-unit coupled carrier vehicles/transporters, snowmobiles, and hovercraft (air-cushion ships) according to Ground Force Commander Colonel General Oleg Salyukov.⁹⁵⁵ A six-wheel jeep called the Trekol, along with tracked vehicles, are described as “go-anywhere” designs. The Trekol can hold ten fully equipped soldiers.⁹⁵⁶ In December Deputy Defense Minister Dmitriy Bulgakov arrived at the Northern Fleet to test twenty vehicles. They included tracked vehicles; army snowmobiles (Stels Rosomakha V800); the all-terrain ultralow-pressure-tire 6x6 vehicle with an all-metal cab; the GAZ-3344-20, DT-

⁹⁵¹ “Defense Ministry Airfield on Novaya Zemlya Ready to Receive Aircraft,” *RIA Novosti (RIA News)*, 17 September 2014.

⁹⁵² “The First Arctic Brigade Will Appear in Russia by the End of March 2015,” *Moscow BFM.Ru*, 10 December 2014.

⁹⁵³ “Soldiers in the Arctic Will Live Martian-Style,” *Vostok Media (East Media)*, 26 August 2014.

⁹⁵⁴ *Interfax-AVN Online*, 1 October 2014.

⁹⁵⁵ *Interfax* (in English), 1 October 2014.

⁹⁵⁶ *Zvezda TV (Star TV)*, 14 December 2014.

3PM, DT-10P, and DT-30P two-link tracked transporters; multirole vehicles (LShA, LShA-2, LShA-B); mobile workshops and evacuation and repair equipment; and life-support equipment in the form of quick-erect inflatable shelters.⁹⁵⁷

There are plans to build a Mi-8-AMTSh helicopter that can be used by the army as well as oil workers. Testing is to begin in winter 2015. The design and development have taken into account the specifics of low temperature conditions, flying in limited visibility, and flying during the polar night. The helicopter is designed to be capable of navigation even when satellite signals are lost.⁹⁵⁸

Space, Aerospace, Etc., 2014

Other military units are involved in this inter-service force, or supporters of it. The Federal Space Agency intends to deploy the Arktika-M satellite network. It will involve putting two satellites into high elliptical near-Earth orbit for Arctic monitoring of emergency situations. It will also provide weather data and exercise environmental control. The satellites reportedly can be used to forecast flight conditions and the status of the Earth's ionosphere and magnetic field.⁹⁵⁹ Unfortunately for Russia, the remote sensing satellite Meteor-M No. 1 has become unserviceable. It monitored ice conditions in the Arctic, studied ice on large lakes outside the Arctic Circle, and provided navigation and weather information. Russia still has four remote sensing satellites in orbit, however,⁹⁶⁰ and is deploying Russian Aerospace Defense Forces in the Arctic. They will monitor the defense of Russia's Arctic zone and the NSR in particular.⁹⁶¹

⁹⁵⁷ "A Defense Ministry Expedition Team has Headed Out to the Arctic to Test Prospective Types of Tracked and Wheeled Vehicles," *Ministry of Defense of the Russian Federation*, 5 December 2014.

⁹⁵⁸ "Testing of Russia's First Arctic Helicopter to Begin in Winter," *RIA Novosti Online (RIA News Online)*, 4 August 2014.

⁹⁵⁹ *Interfax* (in English), 6 October 2014.

⁹⁶⁰ *Interfax* (in English), 25 November 2014.

⁹⁶¹ *Interfax* (in English), 29 November 2014.

Colonel-General Vladimir Kulishov, first deputy director and chief of the FSB's Border Service, stated that the protection of Russia's national interests in the Arctic region remains "among the priorities in our border guard activities."⁹⁶² In September the NTV program "Smotr" profiled FSB border guard life on the Franz Josef Land archipelago, indicating that these guards may be located on several islands in the Arctic Ocean.⁹⁶³

Military Developments in 2015

Russia continues to state that it is not militarizing the Arctic. Critics find this assertion nearly unsupportable, since an infrastructure has been constructed in the Arctic, Russia admits it is working to prepare the Arctic in the operational sense, the combat potential of the Northern Fleet (and development of a new command) has been dramatically increased, logistics capabilities have been expanded, nuclear submarines are patrolling the waters, and the area is under UAV monitoring. Other reports note that the Pantsir anti-aircraft missile system is on islands in the Arctic Ocean, new radar stations are being deployed there, 14 airfields are being rebuilt, and fighter aircraft are there. All of these issues are stated directly in the Russian press.

The Soviet-era *Military Encyclopedic Dictionary* defines militarization as follows:

The subordination of sociopolitical affairs, the economy, and ideology to the interests of preparing for aggressive wars. Usually accompanied by an arms race, suppression of democratic and revolutionary movements, and frequently by the establishment of totalitarian regimes.⁹⁶⁴

⁹⁶² *Interfax* (in English), 28 May 2014.

⁹⁶³ *NTV*, 6 September 2014.

⁹⁶⁴ S. F. Akhromeev, *Voennyi Entsiklopedicheskiy Slovar'* (Military Encyclopedic Dictionary), Moscow: Military Publishing House, 1986, p. 443.

As this section will demonstrate, Russia is accomplishing many of the points associated with this definition and in effect militarizing the Arctic. In the end, the military goal appears to be occupying the Arctic with a massive infrastructure and denying access to parts of the Arctic to others. This results in a significant advantage in the correlation of forces in Russia's favor.

Russia intends to raise the amount of traffic through the NSR by 20 times in the near future with one target/forecast being the transport of nearly 80 million tons of freight annually by 2030. In light of this goal Russia has developed its Arctic Coast Guard to help shepherd the freight through the NSR or to help rescue stranded vessels. Low oil prices, high insurance rates, and the opening of another Suez route have heightened Russian concerns that the NSR might not be as big a money-maker as originally assumed.

This section on the Arctic will cover activities to the end of 2015. The sections will be divided into the following groups: national security thinking, ground forces, navy forces, and aerospace forces.

National Security Thinking, 2015

There was no article of concern regarding national security in January. In February Defense Minister Sergey Shoygu stated that many non-Arctic nations were trying to secure access to the Arctic through political, military, and economic steps. Meanwhile Arctic nations have tried to extend their national territories at the expense of the continental shelf and islands in the Arctic Ocean. This situation encourages Russia to protect government interests there with the means of warfare,⁹⁶⁵ which is an aspect of the definition of militarization. Shoygu has told the defense collegium that the government will not be shrinking Russia's budget in regard to the Arctic.⁹⁶⁶ Deputy Natural Resources Minister Denis

⁹⁶⁵ *Interfax* (in English), 26 February 2015.

⁹⁶⁶ Aleksandr Boyko, "Minister of Defense Sergey Shoygu Tells Government Representatives and Subordinates Exactly Where our Army will not be Cutting Costs..." *Komsomolskaya Pravda Online (Komsomol Truth Online)*, 25 February 2015.

Khramov stated that Western sanctions would not prevent Russia from continuing its exploration of the Arctic. Further, the sanctions would act as a stimulus for Russia to pursue its own technologies.⁹⁶⁷ To develop the region, a governmental commission has been established. It will be led by Deputy Prime Minister Dmitry Rogozin.⁹⁶⁸

In March the composition and role of the commission was discussed in the press. Operationally the commission was formed to coordinate all bodies involved in the Arctic. It would evaluate resource use, make decisions about regional development, and ensure the realization of priority investment projects.⁹⁶⁹ Commissioner Rogozin will have five deputy chairmen: Natural Resources and Environment Minister Sergey Donskoy, Energy Minister Alexander Novak, Economic Development Minister Alexey Ulyukayev, Transportation Minister Maxim Sokolov, and Deputy Security Council Secretary Vladimir Nazarov. With 60 members overall, the commission is well stocked with prominent ministries and personalities. For example, the commission includes the Head of Economic Security Services for the FSB, Yury Yakovlev, Deputy Defense Minister Dmitry Bulgakov, and representatives from several of the big state companies (Gazprom, Rosneft, Transneft, etc.).⁹⁷⁰ Other deputies and companies were to be added in the coming months. There were reports that two regiments and Special Forces divisions of the VDV are to be sent to the Arctic,⁹⁷¹ but there was no confirmation of this report.

In April the commission set up a board (with 34 commission members) and eight working groups (headed by the five deputy chairmen, Rogozin, and Arthur Chilingarov and Sergey Shishkarev). Funding was set at 222 billion rubles for the next five years; an Arctic audit would be conducted by the Economic Ministry by 1 August; and the Justice and Economy Ministries would analyze and develop a legal

⁹⁶⁷ *Interfax* (in English), 5 February 2015.

⁹⁶⁸ *Interfax* (in English), 6 February 2015.

⁹⁶⁹ Unattributed report, *The Moscow Times Online* (in English), 17 March 2015.

⁹⁷⁰ *Interfax* (in English), 17 March 2015.

⁹⁷¹ *RIA Novosti* (*RIA News*), 17 March 2015.

framework for the Arctic by 1 September. This report will decide whether Russia should draft a law on the Arctic.⁹⁷² Ambassador-at-large Vladimir Barbin, commenting on Arctic cooperation, stated that the Arctic is a region for dialogue and collective responses, which, he added somewhat incredulously from a Western perspective, has no military dimensions but only breakthrough technological achievements, considerations of climate change, and openings regarding economic exploration.⁹⁷³ Meanwhile, in spite of these observations and the complaints of environmental groups, Rogozin stated that Russia intends to go forward with plans to build a floating nuclear power plant that can be docked to coastal infrastructure. Energy will be provided by a cable to any Arctic city. It should be ready by October of 2016.⁹⁷⁴

In May the federal government allocated over 250 million rubles to restart national expedition research in the high-latitude sectors of the Arctic, where a North Pole drifting station would expand studies of the Arctic on a seasonal basis.⁹⁷⁵ Russia continued to state that it planned to submit an application to extend its borders in the Arctic. The bid is expected to include the underwater Lomonosov and Mendeleev ridges, as well as the Podvodnikov basin and perhaps parts of the Gakkel ridge.⁹⁷⁶ Russia's Permanent Representative to NATO, Alexander Grushko, stated that NATO's involvement in the Arctic is a threat to global security.⁹⁷⁷

In June, State Duma Deputy Vyacheslav Tetekin noted that the Russian North is the new center of world geopolitics. He stated that the center of gravity of Russia's economic system has shifted north from the industrial areas of Europe to the northern gas and oil producing regions,

⁹⁷² Sergey Goryashko, "Arctic Will Be Given a Separate Law and New State Program; Arctic Commission Will Create a Regulatory Framework to Manage the Region," *Kommersant Online (The Businessman Online)*, 15 April 2015.

⁹⁷³ *Interfax* (in English), 20 April 2015.

⁹⁷⁴ Unattributed report, *The Moscow Times Online* (in English), 21 April 2015.

⁹⁷⁵ *Interfax* (in English), 11 May 2015.

⁹⁷⁶ *Interfax* (in English), 21 May 2015.

⁹⁷⁷ *Interfax* (in English), 15 May 2015.

such as the Khanty-Mansiysk and Yamalo-Nenets autonomous okrugs. Here revenue also includes gold, diamonds, coal, and other mineral deposits. Such wealth brings competition from other northern nations (especially those from NATO countries), thereby producing a threat that hangs over the area.⁹⁷⁸ However, a meeting of the Foreign Ministry's board noted that there are currently no challenges to Russia in the Arctic of a military nature requiring military solutions (which makes one wonder about the continued expression of concern over Russian suspicions that NATO is encroaching on Russia's borders). Nevertheless Russia is prepared to respond to any situation that harms its national security interests.⁹⁷⁹ Another development was the deployment of Rubezh mobile antiship missile systems to Ostrov Kotel'nyy.

Also of note was the Federation Council's preparation of a draft law "On the Arctic Zone of the Russian Federation." The law's goal is to legalize the status of the Russian Federation's Arctic Zone and to describe the legal mechanisms for implementing state policy there. The Arctic Zone contains the following elements: Murmanskaya Oblast; Nenetskiy, Chukotskiy, and Yamalo-Nenetskiy Autonomous Okrugs; Vorkuta and Norilsk City Okrugs; territories of Krasnoyarskiy Kray's Taymyrskiy and Turukhanskiy Rayons and some territories in Arkhangeslkaya Oblast; some of Yakutiya's northern organs of state administration; and islands in the Arctic Ocean.⁹⁸⁰

There was one very important development in July, a new Naval Doctrine. According to Deputy Prime Minister Dmitri Rogozin the doctrine has four functional areas and six regional areas. The four functional areas are naval activity, marine transport, marine science, and mineral resource development. The six regional areas are the Atlantic, Pacific, Arctic, Antarctica, and Indian oceans, and the Caspian Sea. The

⁹⁷⁸ Vyacheslav Tetekin, "The Russian North—Is the New Center of World Geopolitics," *Nakanune.ru (The Day Before)*, 16 June 2015.

⁹⁷⁹ *Interfax* (in English), 23 June 2015.

⁹⁸⁰ Natalya Bashlykova and Konstantin Dorofeyev, "Federation Council Prepares Outline of Law on Arctic's Development..." *Izvestiya Online (News Online)*, 26 June 2015.

stated reason for the doctrine was the increase in Russia's position as a sea power.⁹⁸¹ The doctrine was required for Russia to development due to the growing rivalry for the ocean's resources and competition for cargo transport. The new doctrine was adjusted in accordance with several other new strategic documents of recent years (National Security Strategy for the Period to 2020, a new Military Doctrine, etc.).⁹⁸² The same month Russia submitted an adjusted bid to its Arctic continental shelf proposal to the UN's Commission on the Borders of the Continental Shelf.⁹⁸³ The bid used information collected from a survey of the seabed and seabed sediment taken from a depth of several kilometers. The last expedition collecting this information took place in October 2014 and it studied the Podvodniki and Amundsen Basins. The bid's goal is to establish Russia's sovereign rights over an additional section of more than 1 million square kilometers of continental shelf.⁹⁸⁴

There was also a report on calls for improving the current system of antiterrorism security of Arctic infrastructures and shipping facilities. The existence of hazardous industrial facilities as well as nuclear-powered icebreakers and offshore oil and gas platforms and transshipment ports are other economic factors that must be protected by antiterrorist rules and regulations.⁹⁸⁵ Finally a report cited the head of the Defense Ministry's main military medical directorate, Alexander Fisun, stating that due to a lack of sunlight and severe living conditions, the psychological state of Arctic soldiers is of concern. However, the use of antidepressants is highly discouraged, and "pills are the third or fourth thing on our list" to correct the psychological state of soldiers.⁹⁸⁶

⁹⁸¹ Unattributed report, "Russian Federation Marine [Naval] Doctrine 26 July 2015, Baltiysk," *President of Russia Website* (in English), 27 July 2015.

⁹⁸² *Interfax* (in English), 12 August 2015.

⁹⁸³ *Interfax* (in English), 4 August 2015.

⁹⁸⁴ Unattributed report, "Meeting with Government Members: 5 August 2015, Novo-Ogarevo, Moscow Region," *President of Russia Website* (in English), 5 August 2015.

⁹⁸⁵ *Interfax* (in English), 11 August 2015.

⁹⁸⁶ Unattributed report, *The Moscow Times Online* (in English), 21 June 2015.

In September, Russian analyst Vladimir Karyakin, a senior research fellow at the Russian Institute of Strategic Studies, noted that Russia has 12 diesel-powered and four nuclear-powered icebreakers, and funding for three more of the latter has been allocated. It was noted that by 2020 Russia hopes to have an Arctic Troop grouping that incorporates the Northern Fleet, two Arctic motorized infantry brigades, airborne troops, modernized MiG-31 BM interceptors, and transport aircraft. The missions will be to protect territories along the NSR and the safety of ships on the route. Radar stations will include Podsolnukh surface-wave beyond-the-horizon stations.⁹⁸⁷

Russia wants to keep the US from internationalizing the NSR. If the US gets its way, it would be possible for the US to deploy there missile defense ships and cruise missiles aimed at Russia. Revenues from transport ships would be taken by other nations and impact Russia's budget. Another analyst, Aleksandr Khramchikhin, a deputy director of the Institute of Political and Military Analysis, stressed the weakness of the Canadian, Norwegian, and Denmark military potential in the region. The US does not have significant contingents of its AF in the European Arctic either. This makes it difficult for an armored battle to be imagined in the Arctic. What this implies is that Russia is making a simple correlation of forces estimate and deciding they will win, which gives them more resolve to act with strength in the Arctic. Khramchikhin ends noting that "I cannot imagine the passage of any vessel, let alone a warship, along the NSR without prior arrangement and without Russia's consent."⁹⁸⁸

In spite of Russia's intense militarization of the Arctic, President Putin states that the Russian responsibility there is to preserve "a balance between thriving economic activity and conservation of the unique environment, and a caring attitude to the culture and traditional lifestyles

⁹⁸⁷ Anton Mardasov, "Russia-USA: From 'Cold War' to 'Ice War.' Might the Arctic Become a Theater of Military Operations?" *Svobodnaya Pressa (Free Press)*, 10 September 2015.

⁹⁸⁸ *Ibid.*

of indigenous small-numbered peoples.”⁹⁸⁹ Russia’s permanent representative to NATO, Alexander Grushko, stated that Russia is reinforcing its northern flank due to the increase in the number of exercises being conducted near the Arctic Circle by other nations. As he states “this will also require very thorough analysis on our part so as not to allow any surprises and not to allow the balance of forces that we have in the north to be upset.”⁹⁹⁰ He thus sees the situation differently than Khramchikhin. Meanwhile Russia contends it is interested in “the formation of an international system of Arctic security and cooperation.”⁹⁹¹

Russian defense officials continue to brag about their achievements. Defense Minister Shoygu stated in October that a big military base, bigger than any during the Soviet period, has been created on the island of Kotelnny. Smaller bases will be built on Wrangel Island, Cape Schmidt, the eastern coast of the Chukchi autonomous region, and the Kurils.⁹⁹² Defense Minister Shoygu stated in October that the entire Arctic group will be created and armed by 2018, which appears to be a faster pace than other projections. Deputy Prime Minister Dmitry Rogozin noted that military bases and airports are being erected in the Arctic “solely in order to defend economic interests of Russia in the region.”⁹⁹³ Natural Resources Minister Sergey Donskoi noted that a draft law “on the development of the Russian Arctic zone” will be ready in the fall of 2016.⁹⁹⁴ Rogozin added later that he is certain there will be a political and diplomatic clash over the Arctic, because “80 per cent of all our hydrocarbon deposits are there.”⁹⁹⁵ Thus, it is clear that militarily, economically, and legally the Kremlin continues to expand its influence and hold on the Arctic. It was also reported that the Kurchatov Institute has created a center for nuclear industry development beyond the Polar

⁹⁸⁹ *Interfax* (in English), 16 September 2015.

⁹⁹⁰ *Interfax* (in English), 11 September 2015.

⁹⁹¹ *Interfax* (in English), 16 September 2015.

⁹⁹² *Interfax* (in English), 22 October 2015.

⁹⁹³ *Interfax* (in English), 20 November 2015.

⁹⁹⁴ *Interfax* (in English), 23 November 2015.

⁹⁹⁵ *RIA Novosti (RIA News)*, 20 November 2015.

circle. The center will enable the development in the Arctic of nuclear technologies and nuclear industry.⁹⁹⁶

In December 2015 Rogozin stated that the NSR will eventually become a “cold Silk Road.” Nuclear-powered icebreakers will be able to lead ships through the ice at any time of the year. Russia is also building a floating power plant, which is a unique innovative technology. Top government priorities in the Arctic are the living conditions of the people who reside there; and national security issues.⁹⁹⁷ Rogozin contends that the Arctic is not militarized, yet over 430 military infrastructure facilities are now completed for the deployment of military units to the Arctic zone.⁹⁹⁸ The Arctic will be reinforced with groups of troops in 2016.

As the year closed, Natural Resources Minister Sergey Donskoi stated that in February 2016 he would be submitting an application for expanding the orders of the Russian shelf in the Arctic. The area which Russia is claiming contains “forecasted hydrocarbon resources of 4.9 billion tons of conventional fuel.”⁹⁹⁹

Ground Forces, 2015

In January a base for the 80th Arctic brigade was constructed in Alakurtti, Murmansk region. The goal is to finalize the building of all military infrastructures in the Arctic by the end of 2015.¹⁰⁰⁰ Alakurtti is about 60 km from the border with Finland. The brigade there has in its inventory military prime movers, all-terrain vehicles, and snowmobiles. The goal of the brigade is to ensure economic security and the protection of interests of the Russian Federation in the Arctic zone.¹⁰⁰¹ An *Izvestiya* report noted that the Ministry of Defense had tested more than 25 models of wheeled and snow or swamp-type vehicles developed specially for the

⁹⁹⁶ *Interfax*, 7 December 2015.

⁹⁹⁷ *Interfax* (in English), 7 December 2015.

⁹⁹⁸ *Interfax* (in English), 8 December 2015.

⁹⁹⁹ *Interfax* (in English), 24 December 2015.

¹⁰⁰⁰ *Interfax* (in English), 13 January 2015.

¹⁰⁰¹ Olga Vorobyeva, “Tested by the Arctic,” *Krasnaya Zvezda Online (Red Star Online)*, 20 January 2015.

Arctic. They included the GAZ-3344 and DT-3PM low-mass tracked crawlers, quad bikes, and snowmobiles, among many other options. The goal is to have equipment that can negotiate water obstacles and trek over snowdrift conditions and ice ridges for long distances. Many of the vehicles failed the late 2014 test and were sent back for more work.¹⁰⁰² It is thought that military uniforms capable of withstanding temperatures down to minus 57 degrees will be prepared.¹⁰⁰³

In February the military-industrial complex created a sixth-generation radio-technical system for the Arctic. It is designed to provide stable communications in EW conditions and to provide for the secrecy of data transmissions. One example is the Azart digital radio station, a pocket radio that is supposedly difficult to target. It operates in a wide frequency waveband and defines coordinates in GLONASS/GPS systems. The batteries provide up to 12 hours of Azart operation.¹⁰⁰⁴ With regard to forcing facing Alaska, Russia has improved the fighting strength of its Eastern Military District (which comprises the Chukotka Peninsula), where it has deployed four brigades of the Aerospace Defense Troops along with radiation, chemical, and biological protection regiments; and radar squads and aviation guidance stations on Wrangel Island and Cape Shmidt. In 2014, new Su-30SM, Su-35 fighter jets, and Bal coastal missile systems were delivered to units in the district.¹⁰⁰⁵ In other work, the Federal Agency for Special Construction has been at work on six islands in the Arctic, preparing them for occupation. They

¹⁰⁰² Anastasiya Kravchenko, "Defense Ministry Sends Vehicles Developed for the Arctic Back for Further Work..." *Izvestiya Online (News Online)*, 13 January 2015.

¹⁰⁰³ Yuriy Gavrilov, "Minus 50 and Below. Future Officers to be Checked for Tolerance of Freezing Conditions," *Rossiyskaya Gazeta Online (Russian News Online)*, 14 January 2015.

¹⁰⁰⁴ Anton Valagin, "A New Generation of Communications Equipment Will Be Developed for Servicemen in the Arctic," *Rossiyskaya Gazeta Online (Russian News Online)*, 10 February 2015.

¹⁰⁰⁵ *Interfax*, 25 February 2015.

are the Franz Joseph, Wrangel, Sredniy, and Kotel'nyy Islands; the Rogachevo Settlement on Novaya Zemlya; and Cape Shmidt.¹⁰⁰⁶

In March there were reports of a new Arctic Grouping. It would consist of two separate motor-rifle brigades from the Murmansk Region and Yamalo-Nenets Autonomous Area. It is thought that the 61st Separate Marine Regiment may be transformed into a separate brigade and join the Arctic Grouping. They will be deployed on Novaya Zemlya, Novosibirsk Islands, Franz Joseph Land, and Wrangel Island.¹⁰⁰⁷ During an inspection of the Arctic in March, the training scenario included: the deployment of a system supporting the combined-arms group; the deterrence of a simulated enemy by a naval force and reconnaissance and sabotage group; and the relocation of a special-purpose unit. State borders were protected from the air, at sea, and on land in the Extreme Northern territories.¹⁰⁰⁸ Also in March a subunit in Chukotka began testing the Orlan-10 UAV under Arctic conditions. Chukotka is part of the Eastern Military District, so the UAV operated over the districts deployment areas of Wrangel Island and Cape Shmidt.

In April Airborne Troops (VDV) began training for an Arctic jump with the Arbalet special-purpose parachute system. In mid-March more than 80,000 troops were involved in a combat readiness inspection in the Western Military District with emphasis on the Arctic. The VDV is following up on that inspection with the April exercise.¹⁰⁰⁹ In mid-April another inspection was conducted, this one in the Eastern Military District. It also focused on the Arctic.¹⁰¹⁰ One report noted that the Russian military contingent is growing on both the mainland and on islands. Electronic surveillance companies, air defense divisions, and a

¹⁰⁰⁶ Anna Potekhina, "Spetsstroy's Arctic Mission: Military Facilities Continue to be Developed at Intensive Rates in the Country's Polar Areas," *Krasnaya Zvezda Online (Red Star Online)*, 26 February 2015.

¹⁰⁰⁷ *Zvezda TV (Star TV)*, 11 March 2015.

¹⁰⁰⁸ *Interfax* (in English), 16 March 2015.

¹⁰⁰⁹ *RIA Novosti (RIA News)*, 1 April 2015.

¹⁰¹⁰ Unattributed report, "The Ministry of Defense Has Conducted a Snap Inspection of Arctic Subunits..." *Vzglyad Online (View Online)*, 16 April 2015.

VDV component will include a combat and military transport aircraft.¹⁰¹¹ It was announced that the Air Defense Troops in the Arctic will get the latest Krasukha-4 EW systems. The system masks ground areas from radar detection, can suppress on-board radars of strike and naval aircraft, and jams radar frequencies and other radio-emitting sources.¹⁰¹² Arctic subunits trained on the Borisoglebsk-2 EW complex as well at the Tambov training center.¹⁰¹³ It was determined that the Orlan-10 would be ready for deployment as of 1 May, with tasks to include monitoring the ecology and ice in the near Arctic Zone and the NSR, as well as the shipping situation and, where necessary, search and rescue operations in the Arctic.¹⁰¹⁴ Main threats to Russia in the April timeframe were stated to be the possibility of other states staking territorial claims regarding the Russian shelf and the NSR.¹⁰¹⁵

In May there were few new items of interest, as much of the preparation for new activities appeared focused on June. Both May and June did focus on the continuing efforts to construct military infrastructure on the numerous islands and archipelagoes that are intended for Armed Forces deployments. Also developing infrastructure is the Russian Emergency Situations Ministry. They plan ten centers in all.¹⁰¹⁶ Of interest is that Defense Minister Shoygu stated that the infrastructure for the military was being prepared “in the operational sense.”¹⁰¹⁷ The Petropavlovsk-Kamchatskiy area is in receipt of an S-400 air-defense missile regiment, replacing S-300 missiles.¹⁰¹⁸ Scientists have developed special fuel and oil for military vehicles that allows

¹⁰¹¹ *Interfax* (in English), 1 April 2015.

¹⁰¹² *RIA Novosti (RIA News)*, 2 April 2015.

¹⁰¹³ “The Arctic Formation’s Electronic Warfare Subunits Conduct Training at the Inter-Branch Electronic Warfare Troops Training and Combat Employment Center at Tambov,” *Ministry of Defense of the Russian Federation*, 21 April 2015.

¹⁰¹⁴ *RIA Novosti (RIA News)*, 23 April 2015.

¹⁰¹⁵ *Interfax-AVN Online*, 24 April 2015.

¹⁰¹⁶ *Interfax* (in English), 1 June 2015.

¹⁰¹⁷ Unattributed report, “Defense Minister General of the Army Sergey Shoygu Held Conference Call with Armed Forces Leadership,” *Ministry of Defense of the Russian Federation*, 1 June 2015.

¹⁰¹⁸ *Interfax-AVN Online*, 3 June 2015.

operators to start vehicles in temperatures down to minus 70 degrees Celsius.¹⁰¹⁹ Some problems were encountered with the Ratnik infantry equipment. It turned out that the optimal time for wearing Ratnik at minus 40 degrees Celsius was 60 minutes and at minus 50 degrees it was 80 minutes.¹⁰²⁰ Once again the VDV reported that they may be holding an exercise in the Arctic in the near future in conjunction with the Northern Fleet.¹⁰²¹

In July a Defense Ministry source stated that Russia will double its military force on Novaya Zemlya Island by 2020. It will be provided with the most advanced weaponry. It is planned to deploy a surface-to-air missile regiment there and to revamp a local airfield.¹⁰²² Federation Council chairman Valentina Matviyenko stated that Russia will only be able to defend its national interests in the Arctic when it reclaims its northern territories. In line with such statements, the military intends to double its force on the island of Novaya Zemlya by stationing an air defense missile regiment there and reconstructing the airfield.¹⁰²³

In August airborne troops and two Arctic motorized rifle battalions supported a Northern Fleet exercise in order to protect important economic and industrial facilities in the area. One reporter noted that over a third of the world's known reserves of nickel and other rare earth metals are concentrated on the Taimyr Peninsula. Copper, cobalt, gold, silver, platinum, iridium, selenium, palladium, ruthenium, osmium, tellurium, and other metals are mined there. As a result, Russia considers this not just an important economic region but also a potential

¹⁰¹⁹ Yuriy Gavrilov, "Armed Forces: The Armored Car Doesn't Fear Freezing Weather: Defense Ministry Selected Equipment for Arctic Troops," *Rossiyskaya Gazeta Online (Russian News Online)*, 5 June 2015.

¹⁰²⁰ TASS, 18 June 2015.

¹⁰²¹ *Gazeta.ru (News.ru)*, 25 June 2015.

¹⁰²² *RIA Novosti (RIA News)*, 9 July 2015.

¹⁰²³ Unattributed report, "Russian Will Double its Force Grouping in the Arctic," *Deyta.Ru*, 9 July 2015.

war theater¹⁰²⁴ (again, a reference to the definition of militarization). The scenario for the protection of these facilities included a sabotage and reconnaissance group of “Western” forces, whose aim was to damage the infrastructure and key enterprises of the Norilskiy Nickel concern. Local units of the Russian Interior Ministry, Federal Security Service, Border Guards Troops, and Emergency Ministry personnel, along with employees of private security companies, participated in the maneuvers. Western forces took prisoners and appeared to have plans to conduct some type of environmental disaster. Russian forces used Orlan-10 UAVs to track the movement of the saboteurs. The entire exercise was deemed to be a defensive one, of course, by the scenario’s planners.¹⁰²⁵

In September one report noted that Russia had cleaned up hundreds of tons of scrap metal from the Arctic, but much work still remains. According to one report there remain on Kotel’nyy Island some 100,000 metal drums of 200-liter capacity. Most scrap metal is from fuel and lubricant packaging. Compressing these metal drums makes their transport easier.¹⁰²⁶ In mid-September there was a simulated landing by the Northern Fleet’s Arctic brigade on Kotelnyy Island. Exercises included an amphibious operation on the island. Ka-27 ship-based helicopters carried the landing groups to the island’s western coast, and these forces were later joined by the assault ships Georgy Pobedonosets and Kondopoga, who offloaded more than 230 servicemen on shore. Equipment included TTM-4902PS-10 all-terrain two-section caterpillar snow and swamp-going vehicles and MT-LBV multirole tractor trucks¹⁰²⁷ (an anti-landing defense of a shoreline was conducted later in

¹⁰²⁴ Vladimir Mukhin, “Arctic Brigade Will Protect Taimyr Mineral Resources,” *Nezavisimaya Gazeta Online (Independent News Online)*, 26 August 2015.

¹⁰²⁵ Vladimir Levchuk, “Taymyr. Many things Were Done for the First Time,” *Na Strazhe Zapolyarya (Guarding the Arctic)*, 4 September 2015.

¹⁰²⁶ Unattributed report, “Northern Fleet Ecological Clearance Platoon Readies Hundreds of Tons of Scrap Metal for Removal from Kotel’nyy Island in the Arctic,” *Ministry of Defense of the Russian Federation Website*, 10 September 2015.

¹⁰²⁷ *Interfax* (in English), 15 September 2015.

the month on the island).¹⁰²⁸ About a week later, over 600 military personnel and some 160 pieces of military hardware of the Northern Fleet naval infantry units took part in a battalion tactical live-fire exercise at the Combat Training Center in the village of Mulino in the Nizhny Novgorod region of the Western Military District. Marines worked on defensive and offensive warfare skills in conjunction with armored and artillery units of local ground troops. Particular focus during the training was on the execution of urban warfare tasks.¹⁰²⁹

In October it was reported that an ice-free lead battery designed to work in cold climates had been introduced. The battery reportedly ensures cold weather engine starts in any military and armored vehicle. A special ultrasonic emitter is mounted in the battery to reduce electrolyte viscosity during operations in subzero temperatures.¹⁰³⁰ An anti-terrorist exercise was held to free an important military facility from a group of simulated terrorists. This is the third exercise involving the Arctic motorized-rifle brigade.¹⁰³¹ Deputy Defense Minister Army General Dmitry Bulgakov stated that the servicemen in the Arctic are ready for the winter. They have an Arctic uniform which, thanks to nanotechnologies, enables servicemen to conduct duties in temperatures as low as minus 56-70 degrees Celsius (minus 68.8-94 degrees Fahrenheit).¹⁰³²

In November, as with the Navy, there was little information about ground forces in the media. It was noted that the test model of the Arktika two-unit armored personnel carrier will be built in 2016, but that appeared to be the only important piece of news.¹⁰³³ In December the

¹⁰²⁸ Unattributed report, "Order: Defend the Shore," *Na Strazhe Zapolyarya (Guarding the Arctic)*, 25 September 2015.

¹⁰²⁹ *Interfax* (in English), 22 September 2015.

¹⁰³⁰ Unattributed report, "Airborne Troop Scientists Develop Ice-Free Batteries to Be Used in Arctic Conditions," *Ministry of Defense of the Russian Federation Website*, 5 October 2015.

¹⁰³¹ *Interfax-AVN Online*, 7 October 2015.

¹⁰³² *Interfax* (in English), 9 October 2015.

¹⁰³³ *RIA Novosti (RIA News)*, 17 November 2015.

Commander of the Strategic Missile Forces of Russia, Colonel-General Sergey Karakayev, stated that positioning new units of the missile force in the Arctic is not envisaged.¹⁰³⁴ Also in December there was a good discussion of the new quad bikes for the military, described as the “future of military reconnaissance.” These all-terrain vehicles (ATVs), along with the Strelets command and control communications system, were tested in December on a training range. ATV’s are quiet and can be hard to spot, and they are easy to maintain. The Strelets system is a tablet carried by servicemen while on ATV missions. It can determine coordinates, take pictures, and send data to a commander’s tablet with a range of 3 kilometers. It is thus possible to coordinate actions while in a near stealth mode. The command and staff vehicle is the R-149MA-1, which has a wi-fi network and communications with the GLONASS satellite constellation.¹⁰³⁵ Further, new all-terrain vehicles were purchased for the force. The Arctic force now has DT-10MP Vityaz tracked vehicles, A-1 snowmobiles, TTM-4902PS-10 two-section amphibious tracked all-terrain vehicles, and AM-1 army quadbikes.¹⁰³⁶

Navy, 2015

In January it was noted that the Northern Fleet will protect economic and political interests of the Russian Federation in other areas of the world, to include the Atlantic Ocean and the Mediterranean Sea.¹⁰³⁷ Northern Fleet Commander Admiral Vladimir Korolev stated that the Arctic has strategic significance for Russia, since 11 percent of the country’s national product and 22 percent of its export volume is created and located there.¹⁰³⁸ The Northern Fleet’s Marines received some new equipment as well. Included was the new BTR-82AM

¹⁰³⁴ *Interfax* (in English), 16 December 2015.

¹⁰³⁵ Olga Kapshtyk, “Going Scouting on ATVs,” *Suvorovskiy Natisk*, (*Suvorov’s Charge*, Electronic Edition), 11 December 2015.

¹⁰³⁶ Unattributed report, “Northern Fleet Arctic Brigade Receives Latest Batch of New All-Terrain Vehicles,” *Ministry of Defense of the Russian Federation Website*, 29 December 2015.

¹⁰³⁷ *Interfax* (in English), 12 January 2015.

¹⁰³⁸ Olga Vorobyeva, “The Attraction of the Arctic,” *Krasnaya Zvezda Online (Red Star Online)*, 17 January 2015.

armored personnel carrier. It features a 30-mm 2A72 automatic gun, coupled with a PKTM 7.62-mm machine gun.¹⁰³⁹

In February missions were listed for the Northern Fleet's submarine force. They guarantee safety along key transportation routes, prevent strategic mishaps, use standard navigation equipment for firing torpedoes and missiles, and function in the main as a deterrence force.¹⁰⁴⁰ The Northern Fleet's Coast Guard Force practiced hardware loading and unloading with the Arctic brigade. The drills used BTR-80 armored personnel carriers, MTLB-V light armored cars for towing, and Kamaz and Ural all-terrain trucks.¹⁰⁴¹ In the past two years the Fleet has procured two ice-class ocean tugs and six ice-class harbor tugs. The ice-class transport ship, the Academician Kovalyov, will join the Northern Fleet in 2015.¹⁰⁴²

The submarine theme continued into March. It was stated that they will now patrol the coastlines of all five continents, and that the ultralow-noise Yasen-M project 885M with X-102 nuclear cruise missiles would begin sea patrols in 2017.¹⁰⁴³ Rear Admiral Aleksandr Moiseyev, commander of the Northern Fleet's Submarine Forces, stated that the fleet spent 1,100 days at sea last year. The submarines perform a peacekeeping mission, he noted, since they are a weapon of strategic deterrence. The Northern Fleet's responsibility remains the seven seas with the Arctic remaining one of the main areas of use. The submarine forces of the Northern Fleet are the backbone of Russia's Maritime Strategic Nuclear Forces.¹⁰⁴⁴

¹⁰³⁹ Viktor Khudoleyev, "New Armored Personnel Carriers for Naval Infantry," *Krasnaya Zvezda Online (Red Star Online)*, 30 January 2015.

¹⁰⁴⁰ Andrey Gavrilenko, "In the Arctic Latitudes," *Krasnaya Zvezda Online (Red Star Online)*, 7 February 2015.

¹⁰⁴¹ *Interfax* (in English), 20 February 2015.

¹⁰⁴² *Interfax* (in English), 27 February 2015.

¹⁰⁴³ Unattributed report, *bloknot.ru*, 19 March 2015.

¹⁰⁴⁴ Olga Vorobyeva, "Knights of the Ocean Depths," *Krasnaya Zvezda Online (Red Star Online)*, 20 March 2015.

In April the Transport Ministry's bill on protectionist measures was noted, which was said to include a requirement that work on Russia's continental shelf would only be done by vessels built in Russia starting in 2020. The purpose is to localize the construction of vessels used in offshore operations.¹⁰⁴⁵ It was reported that Russia will build three new nuclear ice-breakers by 2020. The first military ice-breaker in 45 years, the Ilya Muromets, will be built as well. Of interest is that it will have a diesel-electric rudder system with the Azipod propeller, which is mounted on a steerable pod that can be rotated 360 degrees. The ship can thus move in any direction—backward, forward, or sideways.¹⁰⁴⁶ Also in April, it was noted that exercises involving UAVs for the defense of submarine bases, as well as unmanned underwater systems, were used to detect sabotage groups sent by a hypothetical enemy.¹⁰⁴⁷

In May it was noted that the inventory of the Northern Fleet naval infantrymen includes the BTR-82A and MTLB vehicles, Gvozdika and Nona self-propelled artillery mounts, and Stela and Shilka air defense missile complexes.¹⁰⁴⁸ Medical issues were discussed. A system for evacuating the seriously ill included a heating system to facilitate intravenous injections in a low-temperature environment and an evacuation bag with an electric heater. Another system provided comfortable conditions, such as thermal fabrics, for soldiers over long periods in low-temperature conditions. Compact waterproof batteries for divers were developed.¹⁰⁴⁹ Korolev stated that compared with other periods of training, the Northern Fleet was much better this year than last. The time underway for submarines increased by a factor of 2.2, missile practice fire increased by 1.9 times, artillery fire from surface ships doubled, naval aviation employments grew by a factor of 1.8, and

¹⁰⁴⁵ *Interfax* (in English), 15 April 2015.

¹⁰⁴⁶ Unattributed report, *The Moscow Times Online* (in English), 23 April 2015.

¹⁰⁴⁷ *Interfax-AVN Online*, 30 April 2015.

¹⁰⁴⁸ Unattributed report, "Northern Fleet Separate Naval Infantry Brigade is 72 years Old," *Ministry of Defense of the Russian Federation Website*, 4 May 2015.

¹⁰⁴⁹ Ilya Vinogradov, "Unique Life-Support Systems for Military Personnel in the Arctic Have Been Presented to the Northern Fleet," *TASS*, 15 May 2015.

aerial mine-laying by naval aviators increased fourfold.¹⁰⁵⁰ Korolev also discussed the newest ships for the Northern Fleet, which retains its ocean zone missions as well as the Arctic. These ships included the Project 955 Borei strategic missile submarine cruisers; Project 855 Yasen multirole submarines; a Project 22350 Frigate; a Project 11711 Large Landing Ship; the Project 20180TV armament transport vessel; the Project 23120 logistics support vessel; the Project 02980 multirole rescue vessel; and the Project 02690 self-propelled floating cranes. Already on station are the S-400 air defense missile system and the Panstir-S air defense missile and artillery system. The Bastion coastal missile system is to be purchased from industry in 2015 as well.¹⁰⁵¹ New ice-breakers will ensure that the NSR is uninterrupted year-round under any conditions, offering great competitive advantages,¹⁰⁵² and drills simulating distress scenarios are increasing. They use Orlan-10 and Takhion UAVs and AS-36 rescue submersibles to help find sunken vessels. Use of the Hard Suit normobaric diving suit and Venom remotely controlled submersibles are also utilized in practices sessions.¹⁰⁵³

In June activity slowed. A large-scale exercise was announced, but it would not take place until the end of the year. The exercise would practice the protection of important economic sites in the Arctic, with motorized infantry units interacting with airborne and special purpose forces.¹⁰⁵⁴ It was announced that two Arctic-class warships would be built to defend the Arctic region. Actually, the ships are patrol vessels that can also work as tugboats.¹⁰⁵⁵

In July more information was provided about ongoing events. Infrastructure is constantly being improved and the Northern Fleet has

¹⁰⁵⁰ Unattributed report, "The Intensity of Combat Training in the Northern Fleet Has Grown Almost twofold," *B-port.com*, 25 May 2015.

¹⁰⁵¹ Olga Vorobleva, "Ocean-Going, Polar, Arctic: On 1 June the Northern Fleet Celebrates 282 Years," *Krasnaya Zvezda Online (Red Star Online)*, 30 May 2015.

¹⁰⁵² *Interfax* (in English), 27 May 2015.

¹⁰⁵³ *Interfax* (in English), 29 May 2015.

¹⁰⁵⁴ *Interfax* (in English), 1 June 2015.

¹⁰⁵⁵ *Interfax* (in English), 1 June 2015.

set up an advanced reconnaissance system in the area. This monitoring system is able to observe both aerial and surface situations in real time, according to Northern Fleet Commander Admiral Vladimir Korolyov. Meanwhile anti-submarine aircraft continue to patrol the Arctic Ocean's seas, and shore forces are continually trained under Arctic conditions. Amphibious assault force landings have been practiced on the unimproved shore of Arctic islands; and multiservice exercises enable the force to practice the defense of strategically important economic sites. The state-of-the-art strategic missile-carrying submarines Yury Dolgoruky, Alexander Nevsky, and Vladimir Monomakh will perform duties in the Arctic this year.¹⁰⁵⁶ As mentioned above amendments to Russia's Naval Doctrine were published as well. It was designed to counter what Russian officials portrayed as NATO's movement toward Russia's borders, and it is designed to increase cooperation with both China and India. The Arctic is important because it allows Russia access to both the Atlantic and Pacific Oceans. Many analysts doubted whether in the short term Russia could meet the many goals of the doctrine simply due to a lack of resources.

In August Industry and Trade Minister Denis Manturov stated that Russia will build the gas carriers and other vessels that will support orders for Arctic oil and gas once the Arctic shelf is further developed. The sanctions have forced Russia to rely more on its domestic components for fulfilling orders according to the required quality and technical requirements.¹⁰⁵⁷ The Northern Fleet's Naval Infantry and the 80th Independent Arctic Motor-Rifle Brigade, practiced assault landings on islands in the Barents Sea.¹⁰⁵⁸ And a long distance deployment was kicked off, with the goal being to maintain Russia's naval presence in the Arctic, by sailing along the NSR and entering a number of transpolar ports for the first time in many years. This is deemed to be the fourth large-scale deployment of the Northern Fleet over a recent period¹⁰⁵⁹

¹⁰⁵⁶ *Interfax* (in English), 27 July 2015.

¹⁰⁵⁷ *Interfax* (in English), 5 August 2015.

¹⁰⁵⁸ *Zvezda TV (Star TV)*, 10 August 2015.

¹⁰⁵⁹ *Interfax* (in English), 14 August 2015.

(most likely the meaning is “since 2012). Three other August events were, first, the announcement that the ballistic missile submarine Aleksandr Nevskiy (possessing Bulava missiles) will be permanently based at Vilyuchinsk (Kamchatka) by mid-September;¹⁰⁶⁰ second, that a Project 22220 Ural nuclear powered icebreaker will be laid down in September 2016;¹⁰⁶¹ and third, a multiservice tactical exercise with over 1,000 servicemen and more than 50 pieces of hardware (14 aircraft and 34 vehicles, to include MT-LBVs, BMD-2s, quadricycles, and UAVs), whose objective is to “practice operations of a multiservice force in the protection and defense of an important industrial facility.”¹⁰⁶² The exercise will both enhance security and keep economic operations in the north unhampered from foreign intrusion. During the exercise subunits of a motorized rifle brigade will land in the port of Dudinka, airborne troops will be airlifted to the region by Il-76 military transport, and rehearsals about guarding and defending installations will be practiced.¹⁰⁶³

In September the Defense Ministry noted that two Tu-142s would be conducting flights over the Barents, Kara, and Laptev Seas to monitor ice conditions along the NSR. Such flights are important for it allows crews to gain experience with the magnetic anomalies and magnetic storms in the region. This is due to the proximity to the Earth’s magnetic pole and large magnetic declination. Radio communications deteriorate in the region as well.¹⁰⁶⁴ Exercises have included anti-amphibious defense, sea coast and island zone protection, anti-terrorism, rescue missions for ships in trouble at sea, and protecting economic facilities in the region. The exercises also demonstrate large-scale command and control capabilities. For example, a September command-and-staff exercise included an attack force composed of the Admiral Ushakov

¹⁰⁶⁰ *Interfax-AVN Online*, 27 August 2015.

¹⁰⁶¹ *Interfax* (in English), 21 August 2015.

¹⁰⁶² *Interfax* (in English), 24 August 2015.

¹⁰⁶³ *RIA Novosti (RIA News)*, 27 August 2015.

¹⁰⁶⁴ Unattributed report, “Northern Fleet Naval Aviation Conducts Ice Reconnaissance in the Arctic,” *Ministry of Defense of the Russian Federation Website*, 1 September 2015.

destroyer, the Vice-Admiral Kulakov anti-submarine frigate, Brest and Yunga ASW corvettes, Rassvet and Aisberg fast attack craft, nuclear and diesel-electric submarines, a coastal rocket and artillery brigade, and other ships and support vessels.¹⁰⁶⁵ Two Bastion complexes will be supplied to the Northern Fleet before the end of 2015, it was announced and, in the future, fleets will receive four complexes per year. The Bastion road-mobile coastal missile complex is armed with the supersonic homing anti-ship missile 3M55E Yakhont and is capable of protecting waterfronts at a distance exceeding 600 kilometers. Each complex can be armed with up to 36 missiles, which can hit targets at a range of 300 kilometers with 200 kilogram warheads.¹⁰⁶⁶ The article did not explain the discrepancy of a system with a 600 kilometer range having missiles with a 300 kilometer range.

In October, a Northern Fleet hydrographic service specified coordinates for determining the geographical calculation of the width of the territorial sea, the economic zone, and Russia's continental shelf in the Arctic. Marking territorial waters allows for an unconditional priority for resource exploration, the Russians note, and the information collected will be used for filing a request with the United Nations Maritime Committee.¹⁰⁶⁷ Russia's submarine fleet received good news in October as well, as the Yury Dolgoruky, a strategic nuclear submarine, arrived at its main base after a long-distance voyage. The submarine is the leader of the Borei Project 955.¹⁰⁶⁸

There were few reports regarding the Navy in November but in December the Northern Fleet identified its priorities as the continuation of infrastructure development in the Arctic and the maintenance of the nuclear deterrent and convention forces in a state of permanent readiness. For the year, the Russian's noted that the Saint Andrew flag is now present everywhere. In the Arctic zone it is present in both the

¹⁰⁶⁵ *Interfax* (in English), 15 September 2015.

¹⁰⁶⁶ *Interfax* (in English), 29 September 2015.

¹⁰⁶⁷ *Interfax* (in English), 12 October 2015.

¹⁰⁶⁸ *Interfax* (in English), 15 October 2015.

eastern and western areas, practically on a permanent basis.¹⁰⁶⁹ To sum up the Northern Fleet's presence in the Arctic, the following Arctic-related articles were published in 2015 in the Navy's flagship publication *Morskoy Sbornik (Navy Journal)*:

Issue 1: National Interests of Russia in the World's Oceans¹⁰⁷⁰

Issue 2: none

Issue 3: The Problem of Cargo Flow Regulation in Arctic Water Areas¹⁰⁷¹

Issue 4: The Economic and Defense Factors of the Northern Sea Route's Development;¹⁰⁷² The Legal Regime of the Arctic in Globalized Conditions;¹⁰⁷³ On the Development of the Normative Legal Base of Sea Activities of Russia¹⁰⁷⁴

Issue 5: Flashy Manoeuvres of the Alert Forces of the Northern Fleet Search and Rescue Support¹⁰⁷⁵

Issue 6: none

Issue 7: none

Issue 8: A Legendary Polar Region Aviator;¹⁰⁷⁶ The Northern Sea Route: the Arctic Sea Communications Development¹⁰⁷⁷

¹⁰⁶⁹ *Interfax* (in English), 8 December 2015.

¹⁰⁷⁰ V. Kuroyedov and M. Moskoenko, *Morskoy Sbornik (Naval Journal)*, No. 1 2015, pp. 42-47.

¹⁰⁷¹ V. Selin, S. Kozmenko, and V. Tsukerman, *Morskoy Sbornik (Naval Journal)*, No. 3 2015, pp. 52-58.

¹⁰⁷² V. Selin and S. Kozmenko, *Morskoy Sbornik (Naval Journal)*, No. 4 2015, pp. 39-43.

¹⁰⁷³ I. Zhudro, *Morskoy Sbornik (Naval Journal)*, No. 4 2015, pp. 44-50.

¹⁰⁷⁴ V. Kuroyedov and M. Moskoenko, *Morskoy Sbornik (Naval Journal)*, No. 4 2015, pp. 51-58.

¹⁰⁷⁵ K. Bezrukov, V. Surma, and S. Kotomkin, *Morskoy Sbornik (Naval Journal)*, No. 5 2015, pp. 52-55.

¹⁰⁷⁶ N. Skritsky, *Morskoy Sbornik (Naval Journal)*, No. 8 2015, pp. 29-33.

¹⁰⁷⁷ S. Kozmenko, A. Koryakovskaya, A. Savelyev, and A. Shchegolkova, *Morskoy Sbornik (Naval Journal)*, No. 8 2015, pp. 40-46.

Issue 9: none

Issue 10: none

Issue 11: The Optimization of the Long-Range Aviation Application in the Arctic in Peaceful Times;¹⁰⁷⁸ The Raising of the Role of the Navy and the Arctic “Naval Closed Administrative-Territorial Formations” under Conditions of the New Sea Doctrine of Russia and its Implementation¹⁰⁷⁹

Aerospace Forces, 2015

In August 2015 Russia combined its air defense, space, and air force into an Aerospace Force. For that reason, this section is so titled.

In January it was noted that 14 airfields would be ready in the Arctic by year’s end, with ten being built this year.¹⁰⁸⁰ An air defense detachment is being equipped with the latest S-400 long-range air defense missile system. It will be based on the Novaya Zemlya archipelago.¹⁰⁸¹

In February it was noted that the security of the Arctic zone will be aided by new radars, namely the Podsolnukh surface-wave over-the-horizon radar. It can detect surface and airborne targets at a distance of up to 450 km. and has all-weather and around-the-clock monitoring capabilities. It can classify up to 300 maritime and 100 airborne targets in an automatic mode simultaneously or successively, while determining their coordinates and issuing target designations on them to shipboard complexes and ground air defense weapons. The same article noted that the defense concern making the Podsolnukh also designed the Voronezh-M (meter band) and Voronezh-DM (decimeter band) radars that upgrade the national missile attack warning system. Their effective range can

¹⁰⁷⁸ V. Alforyov, I Spirin, and Ye. Kushnir, *Morskoy Sbornik (Naval Journal)*, No. 11 2015, pp. 55-59.

¹⁰⁷⁹ S. Kozmenko and A. Bryzgalova, *Morskoy Sbornik (Naval Journal)*, No. 11 2015, pp. 60-63.

¹⁰⁸⁰ *Interfax* (in English), 13 January 2015.

¹⁰⁸¹ *Zvezda TV (Star TV)*, 15 January 2015.

reach 6,000 km and they can detect, track, and classify advanced offensive aerospace weapons, to include ballistic and aerodynamic targets.¹⁰⁸²

In the March-May period it was noted that the army's request for Mi-8AMTSh-AV Arctic-class helicopters may reach 100, according to Deputy Defense Minister Yuri Borisov.¹⁰⁸³ In April Deputy Prime Minister Dmitriy Rogozin stated that the Arctic version of the Il-112 military transport will be ready in 2-3 years which, to him, was another indication that Russia will soon have its own aviation in the near future. There were no aerospace articles of concern in May.

In June another report appeared on the Mi-8AMTSh-VA helicopter. It stated that the helicopter can fly non-stop for 1,500 km with two additional fuel tanks on an external sling and two more inside. Another helicopter under development is the Mi-171A2, which some in Russia think will be the world's best helicopter.¹⁰⁸⁴ It was noted that the MiG-31 interceptor will have a unique navigation system, having an orientation capability that does not depend on GLONASS or GPS satellites. The system under development is the BINS platformless inertial navigation system. Its maximum temperature range is from minus 70 to plus 85 degrees Celsius.¹⁰⁸⁵

In July a short article mentioned the development and deployment to the Arctic of the Pantsir-S surface-to-air missile and gun system. The system provides short-range protection for ground assets. Modifications are underway to make the Pantsir suitable for use under Arctic conditions.¹⁰⁸⁶ It is possible that the new S-500 Prometey may

¹⁰⁸² Yuriy Gavrilov, "The Arctic Will Be Covered Beyond the Horizon: Military Personnel North of the Arctic Circle Will Be Equipped with a New Radar," *Rossiyskaya Gazeta Online (Russian News Online)*, 19 February 2015.

¹⁰⁸³ *Interfax* (in English), 24 March 2015.

¹⁰⁸⁴ *Interfax* (in English), 10 June 2015.

¹⁰⁸⁵ Unattributed author, "MiG-31s Will Learn to Orient Themselves in the Arctic without Satellites," *Rossiyskaya Gazeta Online (Russian News Online)*, 23 June 2015.

¹⁰⁸⁶ *RIA Novosti (RIA News)*, 4 July 2015.

also be deployed in the Arctic.¹⁰⁸⁷ Finally, it was noted that the Northern Fleet will be reinforced by an air force and air defense army composed of MiG-31 interceptors and S-400 surface-to-air missile systems. This air defense and air force army is being created due to the great distances the Northern Fleet has to cover. Su-30 and Su-35 fighters may also become part of the Arctic defense, along with EW and reconnaissance assets.¹⁰⁸⁸

In August the aerospace force was officially formed, but this development was covered in Chapter Five, so it is not discussed further here. Northern Fleet Commander Admiral Vladimir Korolev reported that the fleet had increased its combat potential several fold and that “we have already started to work on forming air force and air defense armies in the Northern Fleet.” Formation of an extensive military infrastructure in the Arctic is continuing. Meanwhile Russian analysts continue to write that NATO’s activity in the Arctic “substantially exceeds what the Russian Armed Forces are doing.”¹⁰⁸⁹ Based on Russia’s clear militarization of the region, in comparison to the limited NATO response that includes virtually no military force in the region, such logic is hard to fathom. The equipment on board the Mi-8AMTSh-VA was noted. It includes the PKV-8 digital autopilot for control, an SSKM-M system to determine location, and an RPA-500 system that is used to search for people and equipment in trouble.¹⁰⁹⁰ Defense Minister Sergey Shoygu noted that by the end of the year an air defense regiment and an Air Force unit will be stationed in the Arctic.¹⁰⁹¹

In September there was mention of the desire to create a UAV weighing 1.5 tons to monitor the Arctic shelf. It is designed to have a

¹⁰⁸⁷ *Zvezda TV (Star TV)*, 8 July 2015.

¹⁰⁸⁸ Aleksandr Stepanov, “Russia Expands Arctic Military Grouping. Air Force and Air Defense Army to Be Part of Northern Fleet,” *MK Online (Moscow Komsomol Online)*, 27 July 2015.

¹⁰⁸⁹ Vladimir Mukhin, “Cold War in the Arctic,” *Nezavisimaya Gazeta Online (Independent News Online)*, 7 August 2015.

¹⁰⁹⁰ Dmitriy Grigoryev, “Arctic Helicopter Tests Commence in Russia,” *Rossiyskaya Gazeta Online (Russian News Online)*, 27 August 2015.

¹⁰⁹¹ *Interfax* (in English), 31 August 2015.

range of 4,000 kilometers and a flight duration of 35 hours. It is equipped with an SAU-9.1 automatic control system that includes a piloting system, on-board computer, and the latest-generation actuators. It is slated for release in 2017.¹⁰⁹² The Federal Space Agency reported that it will set up more centers to receive and process data from remote sensing satellites in order to further explore the Arctic.¹⁰⁹³ The location of air defense units will most likely be on Sredny Island according to another report.¹⁰⁹⁴

In October a report on the Mi-8AMTSh-VA noted that its advantages include its ability to navigate in high latitudes and fly in daytime and nighttime in adverse weather conditions.¹⁰⁹⁵ There were reports of a training exercise that included the use of radar detachments on Wrangel Island and Schmidt Cape in which the detachments detected, identified, and tracked aerial targets;¹⁰⁹⁶ and there were reports that six airfields will be rebuilt in the Arctic in 2016-2017.¹⁰⁹⁷ Also of interest was that the chief of staff of the 15th (special-purpose) Army of the Aerospace Force, Major General Anatoliy Nestechuk, stated that a foundation stone was laid for a new radar which will replace and complement the current system. Nestechuk also stated that the outdated GLONASS-M satellites will be replaced with GLONASS-K satellites.¹⁰⁹⁸

In November it was reported that a squadron of UAVs has been formed in the Arctic's area of engagement, namely in the Eastern Military District in Chukotka. It is equipped with Orlan-10 and Forpost drones that provide visual monitoring of training, help assess the state of

¹⁰⁹² Unattributed report, "Russia Will Create Drone to Monitor Arctic Shelf," *RIA Novosti (RIA News)*, 9 September 2015.

¹⁰⁹³ *Interfax* (in English), 18 September 2015.

¹⁰⁹⁴ *Interfax-AVN Online*, 29 September 2015.

¹⁰⁹⁵ Unattributed report, "Russian Armed Forces May Receive First Arctic Helicopters by the End of 2015," *RIA Novosti (RIA News)*, 5 October 2015.

¹⁰⁹⁶ *RIA Novosti (RIA News)*, 9 October 2015.

¹⁰⁹⁷ *Interfax-AVN Online*, 22 October 2015.

¹⁰⁹⁸ *RIA Novosti (RIA News)*, 3 October 2015.

military infrastructure facilities, and take part in air patrols.¹⁰⁹⁹ Another report noted that new modifications for the Tor-M2U anti-aircraft missile system have been developed. They help the system operate in high winds and cold temperatures.¹¹⁰⁰ In an interview with the chief designer of long-range radio communications, it was noted that there are two radar stations currently in the Arctic (the Dnepr and Daryal), which will soon be replaced by Voronezh and Voronezh-DM stations.¹¹⁰¹

Finally, in December, it was reported that two S-400 Triumph surface-to-air missile separate regiments have been deployed to the Arctic in 2015. They are protected by Pantsir surface-to-air missile-and-gun batteries, and are located in the Novaya Zemlya Archipelago and the town of Tiksi, Yakutia.¹¹⁰² The first full-fledged military unit of the Northern Fleet in the Arctic is to be formed on the Novaya Zemlya archipelago. It is a modernized S-300 anti-aircraft missile regiment. In the past only separate subunits and groups were stationed at these latitudes. Serving at Novaya Zemlya provides servicemen with increased leave and pay, double credit for time served, a supplementary pension entitlement, and the right to replacement if so desired at the end of a 3-year term.¹¹⁰³ They can reportedly destroy helicopters, warplanes, and even ballistic nuclear missiles at a range of several hundred kilometers. They work in temperatures as low as minus 40 degrees Fahrenheit where the cold season lasts almost 10 months.¹¹⁰⁴ In a 2016 report, it was noted that the Northern Fleet's 45th Air Force and Air Defense Army were established in December 2015.¹¹⁰⁵

¹⁰⁹⁹ *Interfax* (in English), 24 November 2015.

¹¹⁰⁰ *Interfax* (in English), 24 November 2015.

¹¹⁰¹ Sergey Dmitriyevich Saprykin, interviewed by Anna Potekhina, "Russia's Surface Echelon," *Ministry of Defense of the Russian Federation Website*, 30 November 2015.

¹¹⁰² *Interfax-AVN Online*, 8 December 2015.

¹¹⁰³ Northern Fleet press service, "New Northern Fleet Air Defense Anti-Aircraft Missile Regiment Takes up Combat Duty in the Arctic," *Ministry of Defense of the Russian Federation Website*, 9 December 2015.

¹¹⁰⁴ Aleksey Koshkin, "Military News Live," *Zvezda TV (Star TV)*, 9 December 2015.

¹¹⁰⁵ *Interfax* (in English), 29 January 2016.

Conclusions

The competition for ownership of Arctic territory is intense. While Russia's Defense Ministry constructs its infrastructure for future use there, Danish and Canadian scientists are working to lay claim to sections of the Lomonosov Ridge. Outside players such as China are hoping to get their claims to the area approved. Hopefully this competition will end peacefully. However, Russian advances in the Arctic (and now in Ukraine and Syria) and President Putin's statement that the Arctic has been under "our sovereignty for several years. This is how this will be in the future" do not bode well for the future of the Arctic's quiet development.

For Russia there are geopolitical goals they hope to achieve. Some of these goals are achievable through diplomatic and negotiation means. Russia is not the only nation with geopolitical aspirations in the region. To support its goals, Russia has constructed (militarized is a better term) its portion of the Arctic to ensure it has a reliable deterrent in case some nations tries to snatch territory illegally. However, militarizing the Arctic has placed Russia in just such a position. Further, there are several serious problems that must be overcome in the region: the lure of the Suez Canal for shipping, the observation that the ice field might in fact be coming back to hinder NSR passage, the instability of permafrost in the region, and the role of nonmilitary organizations to trump Putin's aspirations. All of these issues are discussed below.

Geopolitical Goals

There are really two geopolitical issues at stake. One is the status of shipping along the NSR. From this shipping lane, Russia intends to garner the traffic and arrears it says it is owed for passing through the region. The second and more important issue is laying claim to the riches in oil and gas. These acquisitions appear to be planned through two means: using the United Nations to certify land as belonging to Russia; and militarizing the area to prevent any foreign incursions. Russia is attempting to construct an international legal force to help the nation control events in the Arctic. Russian academics, scientists, and politicians are working in their specific fields to help shape the political factors that could affect the discussions.

At stake is a treasure trove of hydrocarbons and major ore deposits that, if accessed, could provide a nation with energy security for many years to come. Russia already has enough energy resources within the country to sustain it for centuries. It doesn't need oil. The goal of President Putin appears to be to control this huge swath of oil resources and corner the market on prices, insuring a prosperous Russia. It is easy to visualize how Russia, if successful in attaining these goals of resource and NSR control, could hold many nations hostage to record price gauging for its services. The area is one on which all threat analysts should keep a keen and wary eye.

The US recently assumed the chairmanship of the Arctic Council for a two year term. Retired US Navy Admiral Gary Roughead recently wrote that the US could use the position to offer the lead on shipping, resources, and fishery standards and practices; and set the stage for constructive regional engagement and cooperative investment. With the leadership in its hands, the US can help ensure responsible energy exploration and production, and it can help ensure that stringent safety standards are followed.¹¹⁰⁶ Russia may try to delay any agreements until the US chairmanship expires.

Military Goals

The two goals of the military in the region appear to be to establish an overarching monitoring capability and a quick response, powerful military deterrent. Russia has continued to improve its military presence and infrastructure in the region. The buildup includes two light brigades, two airborne divisions that are on-call, new Borei and Yasen-class nuclear missile submarines, rebuilt airfields, and new aerospace defense units. The Arktika space-monitoring system, designed to oversee the area, has been put into operation.

President Obama has called the Arctic a global commons but, he added, the Russians don't seem to see it this way. Their new army

¹¹⁰⁶ Gary Roughead, "In the Race for Arctic Energy, the US and Russia are Polar Opposites," *The Wall Street Journal*, 26 August 2015, p. A13.

brigades—each expected to grow to a strength of 3,600 soldiers—will be deployed on the Yamal Peninsula and at a military based 30 miles from the Finnish border. Russia has a fleet of 41 icebreakers (the US has two), among which six are nuclear-powered to help movement in winter.¹¹⁰⁷

The concerns of the strategic command's commander, Admiral Vladimir Korolev, were noted. They have resulted in the further deployment of military force in the region. He cited the aspiration of some foreign states to give the NSR the status of an international line of communications; the frictions associated with the partitioning the Arctic shelf; and the lack of legal standards between Russia and Norway specifically regarding issues over the use of the Spitsbergen Archipelago and adjacent waters. Such frictions require Russia to properly organize the situational monitoring of the Arctic zone, in particular the NSR. Anti-missile and anti-aircraft defense systems must be developed and a mobile quick reaction group of forces created that can strike at sea, in the air, and on the ground.¹¹⁰⁸ This process seems to be underway.

Problems

There are several problem areas confronting Russia, some due to competition, some to Russian aggression (in Ukraine, which inspired sanctions), and some to climatic issues. With regard to competition, a recent article in *The Economist* indicated that the Arctic hype has somewhat receded in recent months for several reasons. Falling oil prices and Russian/NATO conflicts have lessened the Arctic's allure, as has the decline in melting ice in 2014, which was less than in 2013. The NSR had 71 ships pass through it in 2013 and only 53 in 2014. Meanwhile 16,000 ships passed through the Suez Canal in 2013. So the overall value of NSR shipping remains in flux at the present time.¹¹⁰⁹

¹¹⁰⁷ Steven Lee Myers, "US Seen as Far Behind in Scramble for the Arctic," *The New York Times*, 30 August 2015, pp. A 1, 8.

¹¹⁰⁸ Aleksandr Bondar, "We have Returned to the Arctic in Earnest and For a Long Time," *Na Strazhe Zapolyarya (Guarding the Arctic)*, 1 February 2014.

¹¹⁰⁹ "Not So Cool," *The Economist*, 31 January 2015, p. 51.

A report at the Russian site *ProAtom.ru* noted that travel requires close relations with European carriers and costly commercial transport, but the latter is getting cheaper each year. Further on 6 August a second channel for the Suez Canal was opened. It took one year instead of five. Waiting time has been reduced by a factor of three and transit time by 40 percent, and number of ships passing each day has doubled. On the NSR, no new icebreakers have been provided as required thus far, and traffic fell in 2014 by 4.3 times from the 2013 tonnage. The NSR's initial concept is thus inadequate for five reasons:

1. The NSR will not become a market-maker on the global freight market. It cannot control 2-4 percent of the transit between prime markets connected by this lane, between Europe and Southeast Asia, under the present situation.

2. European tensions are rising and with them reduced tonnage

3. The southern route now has 14 of the 20 largest ports of the world. Of the 71 ports on the NSR route, 66 turn over less than 100 tons a year or they are not functioning at all.

4. In recent years the PRC has been developing the Indian Ocean. It provides half of the European-Asian trade and almost completely controls many of the ports, such as Gwadar and Djibouti. It has another option to reduce the distance to Europe, the high-speed auto-and railroads from Yunnan, Sichuan, and Guizhou to Myanmar; to deep-water ports being built in Dawei and Kalargote. This shortens the route by 3-3.5 thousand nautical miles.

5. Transport costs are becoming more important than transit time. Large shipping companies are reducing their speeds to save fuel by up to 50 percent.¹¹¹⁰

¹¹¹⁰ Vladislav Inozemtsev, "Absurd Investments: Why the Northern Sea Route May Not Make Sense," *ProAtom.ru*, 18 August 2015.

Marine transport is increasingly becoming less expensive. As a result, in face of the competition on rail and sea, Russia is living in an NSR, BAM (Baykal-Amur Main Line) and Transsib (Trans-Siberian Railway) parallel reality. Eurasian transit may turn out to be a dead end.¹¹¹¹

With regard to Russian aggression, its advances into Ukraine have affected its plans in the Arctic, it appears. Former economic development minister Andrei Klepach has noted that Russia, due to sanctions for its actions in Crimea and Eastern Ukraine, will now have to look east for technologies instead of west, since partnerships with western companies are now delayed indefinitely. This will delay certain plans for the development of energy fields in the Arctic.¹¹¹²

With regard to climatic issues, critics still question Russia's strategy. They ask whether everyone is moving too fast to establish supremacy in the region. According to the website <http://wattsupwiththat.com/reference-pages/sea-ice-page/> the Arctic ice field is coming back. This could eventually, if true, once again shut down the NSR and further complicate many of the plans already developed.

In stark contrast to the claim that the ice field is coming back is the fact that melting permafrost and associated methane eruptions have produced a growing number of craters (20-30 original craters with many more secondary ones) that could potentially threaten infrastructure in Russia's north. The cause is said to be the destabilization of relic hydrate trapped beneath the permafrost. Methane gas bonds with water to form methane ice. Warming results in melting permafrost and allows warmer, liquid water to come in contact with the hydrate, resulting in increased hydrate instability. The worry for the future is what to do if very large sections of hydrate go critical, which is to say what if Russia's oil and

¹¹¹¹ Ibid.

¹¹¹² *Interfax* (in English), 9 October 2014.

gas infrastructure is sitting on a potentially destabilizing section of land?¹¹¹³

Finally, another source indicated that hostile measures come simply from nonmilitary measures such as the advance of pro-Western figures into positions of power; indirect force operations ranging from sorties by environmentalists to the staging of political crises and acts of terrorism; and the use of nontraditional military systems based on new physical principles. In the latter case, the issue for Russia was the alleged deployment along Russian borders of ten plasma systems, which could provoke earthquakes and other natural disasters.¹¹¹⁴ Few Americans have ever heard of such systems.

Thus, claims over the continental shelf (based on home grown scientific data), legal claims through the UN, military presence (development of a Northern Command and an icebreaker fleet, early warning radars, modern air defense systems, long-range patrols, and ground forces stationed in the area) help ensure that Russia can threaten or deter any potential intruders to this territory. Since the region holds some 13% of the world's undiscovered conventional oil, a third of the undiscovered conventional gas, and a fifth of the undiscovered natural-gas liquids, it will remain exceptionally important for energy suppliers and will remain a point of contention.¹¹¹⁵ The race is on. Let's hope it ends peacefully with many winners, not just one.

¹¹¹³ See "Siberian Permafrost Methane Shows Growing Eruption: Number of Global Warming-Induced Craters Now Estimated at 20-30," at <https://robertscribblers.wordpress.com/2015/02/24/arctic-methane-monster-shows-growing-eruption-number-of-global-warming-induced-craters-now-estimated-at-20-30/>

¹¹¹⁴ Sivkov.

¹¹¹⁵ Sohrab Ahmari, "Putin Opens an Arctic Front in the New Cold War," *The Wall Street Journal*, 12 June 2015, p. A13.

CHAPTER NINE: RUSSIA AND UKRAINE

Background

The year 2014 will long be remembered in Ukraine as one of pain and suffering. In years past, it would have been unthinkable to consider that Russians and Ukrainians would submit to fighting one another. After all, they are brother Slavs and for years were part of the same nation. In hindsight, however, there appear to have been specific events over the past several years that eventually resulted in Russian President Vladimir Putin's decision to risk capturing Crimea and intervening in eastern Ukraine. Some of those events pitted Russia against US or European ideals, while others were shaped by domestic or personal issues involving Putin.

There were several significant items that most likely influenced Putin's view of his objective or situational environment and changed his approach. First, Putin's ideological development over the past 12 years as President and Prime Minister had been slowly shaped not only by events on the ground but also by the thoughts of Putin's favorite philosophers who supported the "Russian World" concept, Orthodox Christian and Russian values (anti-gay propaganda, etc.), and Russia's cultural heritage of intellectual and geopolitical superiority. During a 1994 speech in Saint Petersburg, while serving as Deputy Mayor of the town, Putin noted that he could not abandon to their fate the 25 million Russians now living abroad after the fall of the Soviet Union. Putin's continued return to this theme makes it appear that the protection of Russian citizens served as the official engine behind his new push westward into eastern Ukraine. However, the lure of coal, shale oil, and defense factories in eastern Ukraine added the fuel to keep the engine running at full throttle.

Second, Putin had festered negative thoughts about the US for over eight years, as stated initially in a 2007 *Time* magazine interview, in which he says there were many US attempts to influence Russia's internal and foreign policies. Putin further showed unsubstantiated paranoia regarding CIA subversion attempts to shape events in Moscow. Russian politicians worried about the rash of ongoing regime changes

attributed to the so-called “color revolutions” that were popping up. Eventually he began to see Western influence and spies everywhere. This has even led to the more recent expulsion of non-governmental organizations from Russia, viewing these groups as agents of foreign influence.

Third, in 2008 Putin had warned NATO members at their Summit in Bucharest against provoking problems with Ukraine, such as offering it membership in the alliance (this followed his 2007 Munich Security Conference outburst against the post-Cold War order that had developed, where he imagined US hegemonic initiatives everywhere he looked). NATO appeared to ignore his warnings. Russia’s borders are sensitive to any foreign activity near them, and NATO’s approach elicited an immediate reaction. NATO has attempted to engage Putin, trying to assure Russia’s leadership that NATO is not a threat to it, even bringing it into the NATO fold for the past several years. Unfortunately Russia still has too much historical sensitivity to make such changes. This only furthered Putin’s sense that the West was out to humiliate Russia. Later, in another geopolitical issue, Russia and the US supported opposite sides in 2012 in Syria, a country with which Moscow has an old and important strategic relationship

Fourth, in 2013 Putin decided to grant temporary asylum to Edward Snowden, the National Security Agency (NSA) analyst who defected with extensive agency computer secrets. This was not the only time Putin had insider information but for Ukraine it was a totally different situation. He reportedly had insider information on the shape of Ukraine’s political and military affairs from covert sources, and his skepticism and suspicion of US actions were further advanced with his understanding that US State Department representative Victoria Nuland had provided \$5 billion to support the cause of protestors against then Ukrainian President Yanukovich and promote regime change. The US website PunditFact explored the last charge and found that since 1992 the US had spent \$5 billion in support of democracy-building programs in Ukraine, with \$2.4 billion going to the promotion of peace and security; \$1.1 billion going to economic growth; and \$1.5 billion going to humanitarian assistance, governing democratically, and investing in

people. The site claimed the “Pants on Fire” assessment of the Russian TV claim.¹¹¹⁶

Fifth, Russia’s military intervention in 2008 in South Ossetia and Georgia received only a short-lived negative response from the West. This may have encouraged Putin to consider more aggressive actions in the future, especially since the incursion into Georgia resulted in a reset of relations with the US after only a few years. Meanwhile Putin continued to view Ukraine as the soul of Russia’s cultural heritage and longed to have it back in the fold of the Motherland. His plans were cut short when he and his policy makers tried to push a Eurasian Economic Union plan on Ukrainian President Victor Yanukovich and offset European Union (EU) plans to integrate Ukraine into the EU. Initially, Ukrainian President Victor Yanukovich chose to join the EU but, at the last minute, he reversed his decision. It was an unpopular domestic decision and appeared to be based on the last-minute demands, influence, or threats from President Putin to get Yanukovich to choose the EEU.

Ukraine’s population began to protest in November 2013 against this change of events and their protests eventually turned into combat against the security forces of Yanukovich in Kiev’s Maidan Square. The protests and damage resulted in the 20 February 2013 deaths of protesters there, who were gunned down by a hail of government gunfire. *New York Times* columnists Andre Higgins and Andrew E. Kramer’s investigated the shootings for months, interviewing many of the witnesses on both sides of the confrontation, and concluded that the bloodshed “prompted a mass defection by the President’s allies” who began to understand that the crimes in the square would be blamed on them. Inna Bogolovskaya stated that a Parliamentary resolution was introduced for all Interior Ministry troops to return to their barracks, apparently without orders from the President.

Without even Parliament on his side, Yanukovich knew he was in trouble. The next day, 21 February, he signed a peace agreement and

¹¹¹⁶ <http://www.politifact.com/punditfact/statements/2014/mar/19/facebook-posts/...>

45 minutes later Ukraine's riot police left all the government buildings. This account is based on the eye witness testimony of Poland's Foreign Minister Radoslaw Sikorski who was present at the signing. No longer guarded, Yanukovych left Kiev on the afternoon or evening of the 21st of February. Higgins and Kramer believe that Yanukovych "was not as much overthrown as cast adrift by his own allies, and that Western officials were just as surprised" as anyone else.¹¹¹⁷ The peace arrangement that Yanukovych had signed, according to Higgins and Kramer, did not secure Yanukovych's future but rather "sent a signal to Mr. Yanukovych's allies that it was time to change sides."¹¹¹⁸

Interestingly, when Putin was interviewed for the March 2015 film "Crimea: The Road to the Homeland" that recounted Yanukovych's decision-making process, Putin omitted any mention of his role in the outcome. He instead blamed the US and EU for pressuring Yanukovych and for supporting the Maidan protestors. He, of course, was blameless in his version of events. Simultaneously, Putin and new Chinese President Xi Jinping continued to develop an extensive partnership that offset many Russian business relations with Europe and the US and the sanctions the West later imposed.

These events preceded and may have motivated Russia's 2014 decision to intervene and seize Crimea. Based on the cards he had to play (see below) and the fate of Yanukovych, Putin's decision to intervene, while risky, most likely appeared worth the chance. Not only were Kiev's new leaders engaged in sorting out what had just happened and not anticipating such a move, but Putin had prepared for such an eventuality according to his March 2015 film.

The baklava-masked gunmen in Crimea allowed Vladimir Konstantinov, speaker of a local assembly, to convene an emergency closed session of parliament. No one knows if there was a quorum or

¹¹¹⁷ Andrew Higgins and Andrew E. Kramer, "Defeated Even Before He Was Ousted," *The New York Times*, 4 January 2015, pp. 1, 10.

¹¹¹⁸ *Ibid.*, p. 10.

how many people voted, but a decision was announced to fire Crimean Prime Minister Anatoly Mogilyov, who had been appointed by Yanukovych, and replace him with Sergey Aksyonov, the leader of the Russian Unity Party, who had signed an agreement with the leader of a Russian nationalist party (with Kremlin ties) earlier. Russian troops then fanned out and surrounded all military installations in Crimea controlled by the Ukrainian Army. Events were described by one activist member of the Russian Unity Party as “our Crimean Spring.”¹¹¹⁹ Ultimatums and provocations followed. The lopsided referendum vote of ninety seven per cent to leave Ukraine is unreasonable for an area that had a non-Russian population of nearly forty percent. Foreign monitors were not permitted to observe the voting process, making the count even more highly suspect.

Maybe Putin believed the quick reset in relations with the US, as occurred with Georgia, might happen again. Perhaps the West would soon get over what he had done and move on. But this didn't happen, as things actually got worse. Putin's new reality really lost its glimmer on May Day 2014, which may long be remembered in Ukraine as the day the killing really started. While thousands celebrated the day in Moscow, up to 50 people died in Ukraine, some on each side, in confrontations in both eastern Ukraine and Odessa. Up to this time confrontations were tense but the line of confrontation did not include shooting and murdering on such a scale. That line was crossed. Further, the opening of a second front in Ukraine's south implied that the development of a pro-Russian-dominated land corridor from Transdnier to Odessa now had to be considered as another Russian goal. Civil war in Ukraine became, for the first time, a topic under consideration in press accounts of the fighting. Putin further dashed any peaceful consideration with plans to construct a Novorossiia or New Russia in the region.

Recent offensive actions in the Donetsk region in 2015 by Russian-supported (or led?) separatists indicate that Putin may not be

¹¹¹⁹ Paul Sonne and Alan Cullison, “Old Allies, Old Grudges Help Moscow,” *The Wall Street Journal*, 3 March 2014, p. A8.

inclined to stop his plan anytime soon, although Russian actions in Syria since September have deflected attention from the region. The temporary halts appear designed to improve the separatists' logistical support before going back on the offensive. As Sun Tzu noted years ago in *The Art of War* "if envoys speak in humble terms, but continue preparations, they will advance." Even German Chancellor Angela Merkel doesn't appear to trust Putin as she once did.

What Cards Did Putin Have to Play?

Russia has always championed the development of forecasting models that allow leaders to look toward the future. If this was the case with regard to Ukraine and Crimea (and no one knows for sure), then the forecasters did an excellent job of pointing out weaknesses that could be exploited.

Initially some European groups blamed themselves for the conflict. Herman Van Rompuy, president of the European Council, noted that the EU's (unsuccessful) effort to sign a trade and aid agreement with Ukraine in 2013 did not have a geopolitical or strategic objective in mind. That was the EU's honest opinion. But Russia did not see it that way. Now the EU in a strange twist was blaming itself for being brutally naïve,¹¹²⁰ for not properly taking Russia's concerns into account.

US Secretary of State Kerry was engaged elsewhere at the time, looking to solve problems in Syria and Iran. Thus Ukraine and Europe became an "open season" for opportunists like Putin. He knows how to use intelligence to size up a winning hand and play it, such as he did with his move into Crimea. The first card he played was to label the evolving events in Maidan as a "specter of an impending coup" initiated by the US. Putin's labeling makes little sense, since former Ukrainian President Yanukovich and several Ukrainian generals are now known to have been pro-Russian, at least according to US analyst Paul Goble's research. They had been informing Putin of the weakness of the Ukrainian Armed Forces, adding to Putin's rationale for intervening. Yanukovich fled to

¹¹²⁰ Ibid.

Russia, not the EU. 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.¹¹²¹

Further, Russians cited the promises made by former Secretary of State James Baker and others that NATO would not move closer to Russia. This point was a much better motive for Putin to use regarding events in Maidan than the coup charge, since, in fact, this did occur. Putin put this anti-NATO card in play to show that you cannot trust NATO and therefore the EU as well. However, Baker’s promises were not formalized in a legal agreement, as was the 1994 Budapest Memorandum, which Russia abrogated in Crimea.¹¹²² According to the memorandum, Russia, the United States, and the United Kingdom all committed to: (1) Respect the independence, sovereignty, and existing borders of Ukraine (2) Refrain from the threat or use of force against the territorial integrity or political independence of Ukraine, and pledged

¹¹²¹ Paul Goble, *Window on Eurasia: 5,000 Yanukovich Supporters Who Fled with Him to Russia Await Return*, 23 October 2014.

¹¹²² Daniel Henninger, “Cold War 2.0, the Videogame,” *The Wall Street Journal*, 17 April 2014, p. A13. In 1999 Poland, Hungary, and the Czech Republic joined NATO, while in 2004 Lithuania, Estonia, Latvia, Bulgaria, Slovakia, and Romania became members. These are former Iron Curtain countries, in the words of Winston Churchill, which chose the West, not Russia.

that none of their weapons will ever be used against Ukraine except in self-defense or otherwise in accordance with the UN Charter (3) Refrain from economic coercion (4) Seek immediate United Nations Security Council action to assist Ukraine, should it be threatened or attacked with nuclear weapons (5) Not use nuclear weapons against Ukraine unless attacked by Ukraine in association or alliance with a nuclear-armed state and (6) Consult if a situation arises that raises a question concerning these commitments.¹¹²³ Russia failed to live up to this arrangement.

A second card Putin played was economics, that is, the ability to hold out against sanctions or look elsewhere for relief. A Chatham House report, which focused on Putin's ability to change the impact of sanctions through economic policy, noted that "Across Europe, national corporations – such as banks, energy companies, and major law firms – are strongly lobbying against any further second- and third-tier sanctions against Moscow as short-term profits would be undermined..."¹¹²⁴ Initial sanctions imposed by the West did little more than amuse many Russians. Moscow's stock market actually rose a little when the sanctions were announced. However, ensuing rounds of sanctions have hit a bit deeper in the pocket-books of some of Putin's closest associates and the pain of sanctions appears to be growing. Of course, Russia has responded with sanctions or geopolitical moves of its own against the West. Interestingly enough, and perhaps not by chance, cyber-attacks from Russia against Internet sites and banks in the West have reportedly increased.

A third card in Putin's hands is his geopolitical capabilities, that is, his ability to block nuclear talks with Iran, hinder further the peace process in Syria, and make it more difficult for US supplies to be transported through Russia to American troops in Afghanistan. Each of

¹¹²³ Jeffrey Lewis, "Ukraine and the 1994 Budapest Memorandum," 29 April 2014, condensed here. See <http://lewis.armscontrolwonk.com/archive/7316/ukraine-and-the-1994-budapest-memorandum>

¹¹²⁴ Ilya Zaslavskiy and Robert Bosch, "Europe Can No Longer Cling to Russian Profits When Security Is At Stake," at <http://email-chathamhouse.org/1TYG-2BYVB-BLOMUK-103L57-1/c.aspx>.

these geopolitical issues lies at the heart of Putin's strength. He and his staff know how to manipulate political issues to Russia's benefit. Foreign Minister Sergey Lavrov has the experience and dedication to assist Putin in each instance.

A fourth card is Russia's European supporters who are scattered among key nations. Former Premier Silvio Berlusconi of Italy says isolating Russia "goes against history" and Jean-Marie Le Pen, leader of France's far right National Front, notes that "Mr. Putin hasn't made a single mistake."¹¹²⁵ In Germany the media's moniker was "the Putin-understanders (some say whisperers)," since much of Germany's support for Russia's actions is tied to strong business links that the nation does not want interrupted. Key German figures of influence are involved as well. For example, former German Chancellor Gerhard Schroder called Putin a flawless democrat in the past and stated that Putin, as a historically thinking person, has a certain fear of encirclement. Who would have imagined that Schroder, after having confronted the Soviet Union's forces in East Germany during the Cold War, would not only be working for the Nord Stream AG, which is controlled by Russian energy giant Gazprom (not all that unusual), but also be acting as if Russian actions in Ukraine today are inconsequential (very unusual). Former Chancellor Helmut Schmidt found Putin's Crimean actions "absolutely understandable." And Siemens AG Chief Executive Joe Kaeser used these two former chancellors to justify his visit to Putin in late March.¹¹²⁶ Clearly Putin played this business angle well. He seemingly had several of Germany's economic giants (Siemens, Volkswagen, Adidas, Deutsche Bank, etc.) in his hip pocket as well. This did not appear to be a time of appeasement. The situation in Ukraine witnessed armed groups storming and occupying numerous buildings across eastern Ukraine, holding journalists and OSCE negotiators hostage, thwarting attempts at imposing order and stability, and shooting down helicopters (and perhaps

¹¹²⁵ Anton Troianovski, David Gauthier-Villars, and Nicholas Winning, "In Europe, Putin Also Has His Defenders," *The Wall Street Journal*, 5-6 April 2014, p. A8.

¹¹²⁶ *Ibid.*

civilian airliners). This is not about free trade, but rather freedom from the illegal conduct of separatists and surrogates.

A fifth card Putin began to put into play was to simply raise gas prices (which it has done in the past), as Gazprom did in early March to increase the financial pressure on Kiev. It is no secret that six European nations rely on Russia for 100% of their gas, while several others get about half of their gas from Russia. However, the glut of oil on the market and the ensuing low prices have hurt Putin as much as the sanctions for Russia's actions against Ukraine. And other nations are trying to reroute oil and gas supplies to the nation.

A final card that Putin holds (and which limits conflict and allows him more room to risk taking land) is simply the fact that the US Armed Forces are broke and tired from a decade of deployments. The US force is reorganizing and reenergizing. This resulted in an anticipated lack of an immediate Western response and put doubt into the minds of allies as to US priorities. However, Putin may have miscalculated here for two reasons. First, some NATO forces (to include US forces) have since been deployed to nations bordering on Russia in response to Russian moves. Putin may have lost some wiggle room for taking chances. Second, his assertion that a coup attempt was underway has little basis in fact. Why would the US, for example, try to initiate a coup when its military was tired from years of fighting and its budget drastically reduced? It doesn't make sense. But, as the next section shows, that really doesn't matter to the Kremlin. They reason differently.

Russia's New Reality

The Kremlin's actions in Crimea appeared supported by its development of a "new reality" that superseded even the Marxist concept of objective reality on which Russian military thought had traditionally relied. Some Russian journalists agreed, with one noting that the system no longer wants to be what it was, and that it appears Russians are being

prepared for entry into some kind of completely new reality.¹¹²⁷ Similarly, another author stated that the entire system of international relations and Russia's internal life will no longer be what they were before, as a new reality is confronting Russians.¹¹²⁸

The “correlation of political and other forces” assessment that Putin and the military made must have been influenced by the development a new reality. It was one of their making, one based on a world view that included Western threats and conspiracies aimed against Russia. That perhaps motivated the decision to take the risk of intervening. He might face sanctions, Putin reasoned, but the EU and Russia's economy are tightly integrated and they will not hold out for long anyway, if history is any guide. His assessment of the calculus for success looked favorable, he had cards to play, and so he acted. This probably was a strategy that his staff and think tanks developed more precisely as events unfolded. It is hard to imagine it was anything more than a potential scenario until Yanukovych fled Ukraine. Then all bets were off. However, this strategy has not worked in eastern Ukraine. Thousands have died and the conflict has dragged on for months. Neither has a Novorossiia been created yet.

Further, the narrative that describes and justifies this new reality has emerged. It is controlled and encouraged by a host of anti-Western propagandists under the tutelage of the Kremlin:

Putin has manufactured a version of reality to propagate the narrative he needs to destabilize Ukraine. He decided an ethno-lingual division was needed to achieve his objectives—and then cast parts. Now the story is being acted out on hundreds of fronts and posted on social media, a virtual live-stream of content for Putin's

¹¹²⁷ Nikita Smagin, “Why Vladimir Putin's Rating is Breaking All Records,” *Sobesednik Online (Interlocutor Online)*, 20 March 2014.

¹¹²⁸ Aleksandr Lukin, “Chauvinism or Chaos: A False Alternative for Russia,” *Nezavisimaya Gazeta Online (Independent News Online)*, 9 April 2014.

argument of oppression, victimization, and fear in Russian-speaking Ukraine. Reality plays no role in all this.¹¹²⁹

The images of masked men taking control of buildings or standing at checkpoints in eastern Ukraine appeared in most regional and international newspapers. Russia again, as initially in Crimea, denied that these were Russian troops. Unfortunately there were no attempts to unmask these pro-Russian supporters when tensions were not so high, such as in Crimea. Today it would be much more difficult and dangerous to try. Another component of Putin's 21st-century new reality offensive is cyber. Cyber tactics have interrupted the communications of legislators and governance, "even as the stream of Russian-language misinformation against Nazis and fascists continues to flow."¹¹³⁰

Putin has clearly constructed in his mind a vision of the world and how to get what he wants. Independent consultants Molly McKew and Gregory Maniatis believe that Putin has not miscalculated, but instead is purposely redefining how 21st-century warfare is fought. He apparently learned something from the 2008 war with Georgia, where state propaganda was used to muddle the narrative regarding who started the war. Putin uses these lessons learned to assert that he is no longer bound by the constraints of nation-state warfare. In Chechnya for years he has been confronting separatists, militants, terrorists, and other stateless actors. He has, according to McKew and Maniatis, developed a pop-up-war type scenario. First, there is the issue of a hidden army. These troops, whose presence Putin has continued to deny, are seemingly unconstrained by the laws, rules, and conventions governing warfare, especially since Putin ignores the international treaties and laws to which he is supposedly held. Soldiers hid their faces and imparted a dark, foreboding psychological aura to a potential conflict situation. These confrontations have been confined so far to areas in his own backyard,

¹¹²⁹ Ibid.

¹¹³⁰ Ibid.

where the impact is the greatest and easiest to manage. In Kiev the absence at first of an identified leader put Ukraine into a negotiating vacuum and offered Putin further room for maneuver.¹¹³¹

In the particular case of Crimea, tactics included a quick intervention without a shot being fired for days. It included the use of both physical presence and psychological pressure (such as issuing ultimatums to Ukrainian forces to abandon their garrison or face an attack; or threatening Robert Serry, the United Nations envoy to Crimea, and demanding that he leave Crimea) as the means to accomplish specific goals. Limited jamming and cyber warfare occurred. By taking patches off uniforms, Russia somewhat neutered local media attempts to state with certainty who and what was taking place on Crimean soil. A similar tactic seemed to be at work in Transdnister at the time, as there were reports of individuals in civilian clothing arriving in large numbers at airports, but no further action took place there.

Lilia Shevtsova, as noted in Chapter One, believes Russians now can't trust anything in the media due to Putin's creation of this new reality. US Secretary of State John Kerry, evaluating his negotiations with Russia over Ukraine, noted that "You almost feel that he's [Russian President Vladimir Putin] creating his own reality, and his own sort of world, divorced from a lot of what's real on the ground for all those people, including people in his own country."¹¹³²

Russia's Propaganda Express Provided Intervention Support

Peter Pomerantsev, a television producer and nonfiction writer who lives in London, noted the following about the new reality and Russian propaganda:

¹¹³¹ Molly K. McKew and Gregory A. Maniatis, "Putin's Latest War Game," at <http://washingtonpost.com/blogs/post-politics/wp/2014/03/02/kerry-says-russia-is-going-to-lose-if-putins-troops-continue-to-advance-in-ukraine/>

¹¹³² Gerald F. Seib, "Kerry Sees Ukraine Crisis as Uniquely Putin's," *The Wall Street Journal*, 29 April 2014, p. A4.

Choreographed, made-for-television uprisings in Donetsk, Kharkiv, and Lugansk; a carefully constructed media message that spins Ukraine's choice into one between federalism or civil war; behind-the-scenes deals with local oligarchs—recent developments in Ukraine bear the signature of Moscow's 'political technologists.' Over the past 20 years this uniquely post-Soviet profession has...inherited the Soviet tradition of top-down governance and the Tsarist habit of co-opting anti-state actors (anarchists in the 19th century, neo-Nazis now), all fused with the latest thinking in television and advertising. The result is a society of pure spectacle, where nothing is ever quite real.¹¹³³

Pomerantsev is correct. The Kremlin has developed control over information and is managing dissent by dominating most media outlets, especially TV, which is the media form most often accessed for news by Russians. Control was thus accomplished domestically/internally, while externally, especially in those nations Russia hopes to reacquire land, such as the Baltics, control is harder to attain. However, ethnic Russians living there and elsewhere outside Russia's borders, with no other news access in their language except broadcasts from Mother Russia, were often clearly swayed by stations such as RTR TV and their single point of view. This is a problem for Baltic leaders. Their ethnic Russian population is susceptible to the Kremlin's message that is based on fabrications "where nothing is ever quite real."¹¹³⁴

A 24 April 2014 evening report on *Rossiia 1 TV* offers an example of this solely Russian interpretation of events. Russian spokesmen stated the following: Ukraine is on the verge of civil war; the Ukrainian group Right Sector is playing a key role in the attacks on Russians; the Ukrainian army is being sent against civilians and Kiev is

¹¹³³ Peter Pomerantsev, "A Glimpse inside the Kremlin Puppetmaster's Mind," at <http://www.ft.com/intl/cms/s/0/0f6ebf30-bf02-11e3-8683-00144feabdc0.html>

¹¹³⁴ Pomerantsev.

flouting the Geneva agreements; US officials are influencing the conduct of the Ukrainian Armed Forces with high level visits, military training, and support to Right Sector; Maidan supporters are undergoing detox to wean them off drugs; Foreign Minister Sergey Lavrov has accused the USA and EU of inciting a color revolution; there is intense psychological pressure on locals and a stress on the inability of the authorities to talk with locals; and there is a bounty out for pro-Russian supporters in Ukraine.¹¹³⁵

Alexander Nevzorov, a former Russian TV journalist and film director who is alarmed by Russia's propaganda offensive, stated recently that the familiar "cocktail of patriotism, chauvinism, imperialism" has gone down as easily as it did during the days of the Soviet Union. That recipe includes sporting the orange-and-black ribbons of St. George, which are most closely associated with the Soviet victory over the Nazis and are favored by Russian nationalists. The ribbons were also covered in the *Rossiya 1* report noted above (implying the fight against Nazis was continuing). One US author has noted that these types of ultra-nationalists with Soviet imperial ambitions helped create the neo-Soviet man as "the latest Putin avatar."¹¹³⁶ Pomerantsev notes that Putin's ideologies are a unique "fusion of despotism and postmodernism, in which no truth is certain."¹¹³⁷

Lev Gudkov, head of the Levada Center, an independent pollster in Russia, noted that Russia's propaganda campaign has had several stages:

- Portraying Maidan as a Western conspiracy

¹¹³⁵ Andrey Kondrashov and Salima Zarif, "News," *Rossiya 1 TV (Russian 1 TV)*, 24 April 2014.

¹¹³⁶ Matthew Kaminski, "Putin's Neo-Soviet Men," *The Wall Street Journal*, 27 March 2014, p. A17.

¹¹³⁷ *Ibid.*

- Portraying the protesters as nationalists, fascists, and anti-Semites who had staged a putsch and threatened Russian-speakers in Ukraine
- Faking stories of Ukrainian refugees fleeing to Russia by using footage of a border crossing between Ukraine and Poland
- Using the defense of the Russian population (from an imagined threat) as the reason for taking Crimea, which has morphed into Russia's reclaiming historic lands.¹¹³⁸

One of the best articles that discounted Russian TV's slanted view of reality was that of Vladimir Ryzhkov in *Moscow Times* on 25 March 2014. Ryzhkov, a Russian State Duma Deputy from 1993 to 2007 and now a political analyst, described in detail a conversation he had with a former KBG officer's propaganda experience in Afghanistan from the 1980s, in which the officer outlined the Soviet principles of an information campaign. It appears that all of these principles were applied by Russian information operatives during the current crisis in Ukraine. Ryzhkov outlined how independent information is losing out to mass propaganda in Russia, where the main objective is to mobilize the population in support of a geo-expansionist campaign. The methods recalled by Ryzhkov from his KGB conversation are listed below, followed by an example of the method as used by Russia in Ukraine in parentheses:

- It is necessary to convince the general population that the government is acting correctly and that the enemy is guilty of fomenting the crisis (Maidan protesters are to blame, the new government is linked to fascists, extremists, the US, and the West, which are the "real aggressors").

¹¹³⁸ Unattributed report, "A New Propaganda War Underpins the Kremlin's Clash with the West," at <http://www.economist.com/node/21599829>, 29 March 2014.

- The Kremlin creates myths about the terrible persecutions of the Russian-speaking population (the spin doctors created a virtual reality that appeared to find the right balance between truth and fiction, even though a human rights investigation by an independent European human rights agency found no violations or persecutions of the Russian-speaking public in Crimea).
- The enemy must be demonized (Ukrainian Right Sector leader Dmitry Yarosh was used for this. Moreover, the moderate forces were presented as neo-Nazis, and negative background information on Ukraine's new leaders was brought to light).
- The authorities disguise their aggressive actions as humanitarian (Russia had a humanitarian need to protect "defenseless" Russians in Crimea from the events that transpired in Kiev).
- The Kremlin justifies its methods by citing alleged enemy actions (the US is trying to take over Ukraine, so we must defend our ancestral territories)
- Authorities must be presented as legal and legitimate (Crimeans have a right to self-determination)
- War propaganda depends on a totalitarian approach (domestically, Russia cracked down on Dozhd TV and Lenta.ru for airing opposition points of view and earlier had silenced the media in Crimea once their forces intervened, pulling Black Sea TV, a local station that supported the new government in Kiev, off the air).¹¹³⁹

¹¹³⁹ Vladimir Ryzhkov, "The Kremlin's War Propaganda," 25 March 2014, at <http://www.themoscowtimes.com/opinion/article/the-kremlins-war-propaganda/496779.html>

Thus it appears these principles were applied by Russian information operatives during the current crisis in Ukraine.

The general conclusions about Russian news media and TV reporting that Western analysts arrive at includes a host of methods to influence the situation. These include propaganda and counterpropaganda, deception, deflection, provocations, reflexive control, disinformation, and psychological pressure. Examples of each would include intercepts of fake US e-mails (deception); statements that the threat to Ukraine is Kiev's economy, not Russia (deflection); Russia's claims that the US produces anti-Russian material (counterpropaganda); Russia's subjective interpretation of facts that distorts reality (propaganda); using masked men to take over government locations (provocations); stating that US servicemen in Russian uniforms will attack Ukraine (reflexive control); stating that neo-Nazis and fascists are running Ukraine (disinformation); and continuing a military buildup on Ukraine's border (psychological pressure).

Russian propaganda describing the conflict in Kiev has affected the views of ethnic Russians living in bordering nations, especially where other nations' radio and television networks receive Russian language TV programs, such as in Lithuania. A recent panel discussion noted that Russia's propaganda situation in Lithuania is ideal:

The situation is fantastic—channels whose entire content is Russian not only obtain EU structural assistance via publicity, but also participate in the advertisement market; in other words, they worsen the situation of the Lithuanian media. In addition, consumers pay them additionally via subscription fees in order to be brainwashed by them.¹¹⁴⁰

As a result, a panel member stated that it is important for politicians to raise the issue of information wars at the European level. This is because

¹¹⁴⁰ *Delfi*, 1 April 2014.

while media on Lithuanian channels is pluralistic and contains various opinions, Russian broadcasts show clear, uniform opinions that are usually one-sided. One gets the impression that in Lithuania not all is well, while in Russia everything is fine.¹¹⁴¹

Finally, in a somewhat bizarre propaganda move, Russia allowed former NSA employee Edward Snowden to ask Putin the following question on a televised call-in show: “Does Russia intercept, store, or analyze in any way, the communications of millions of individuals? Do you believe that simply increasing the effectiveness of intelligence or law enforcement investigations can justify placing societies rather than subjects under surveillance?” Putin responded, noting that “We don’t have a mass system of such interception and according to our law, it cannot exist. We do not have a wide-scale, uncontrolled effort like that in the United States.” The US embassy in Moscow immediately tweeted that Snowden “will probably be interested to know that the laws of the Russian Federation allow for the control, storage, and study of all communication data in Russia. This includes facsimile messages, Internet searches, and emails. But today Snowden did not get such a direct answer.”¹¹⁴²

Trolls

An Internet troll is a person (s) who often chooses to remain anonymous, while posting statements that are designed to persuade or influence thinking or emotions through the use of half-truths or deceptive information. A troll’s point of view is often open to interpretation and seldom relies on an abundance of facts or sound research. Russia has used Internet trolls for some time. For example, in June 2014 Ukrainian journalist Maria Popov wrote about trolls creating Internet propaganda for the Kremlin. The propaganda was noteworthy for both its quantity (number of posts to make a psychological statement that encourages people to agree with the majority) as well as its quality (discussing

¹¹⁴¹ Ibid.

¹¹⁴² Lukas I. Alpert, “Snowden Appears on TV Event with Putin,” *The Wall Street Journal*, 18 April 2014, p. A7.

everything bad about the US and Europe and pointing out the good in Russia).

In July 2014, a Latvian journalist also discussed the role of Russian trolls. The manipulation of public opinion in Europe was seen as a particular goal of the effort. As one study noted “the domestic policy administration of the Russian president controls the works of so-called trolls and bloggers,” whose jobs include “to publish and disseminate commissioned articles, to establish fake accounts on social networks so as to distribute commissioned information, as well as to disseminate spam and persecute opponents on the Internet.”¹¹⁴³ Several journalists in other countries have also examined Russia’s use of Internet trolls.

In the fall of 2014 investigative reporter Adrian Chen was looking into an organization known as the Internet Research Agency in St. Petersburg, Russia. The organization purportedly had been posting propaganda supporting the Kremlin’s point of view online under fake identities in order to create the illusion that Russian activities had a massive following of support. People working there were referred to as “trolls.” As Chen noted, the word became popular in the 1990s as Internet users took on pseudonyms to harass individuals, groups, or their opinions. The Russian group was different in that it cast negative light on foreigners and domestic opponents, while complementing Kremlin officials. He found out that a troll farm in the Ural Mountains had been in existence since 2008.¹¹⁴⁴

Chen discussed a meeting he had with one of the trolls, Ludmila Savchuk, who had since left the organization. In February she had made a clandestine video of the office and leaked it to a reporter for *Moi Raion*, a local paper. She offered a short yet telling description to Chen of several of the many topics she was to discuss at the Agency: disparaging comments about Ukrainian President Petro Poroshenko and

¹¹⁴³ Sarmite Elerte, “Kremlin’s Trolls,” *Ir.Iv*, 18 July 2014.

¹¹⁴⁴ Adrian Chen, “The Agency,” *The New York Times Magazine*, 7 June 2015, pp. 56-67.

Ukrainian Army atrocities; optimistic comments about the financial crisis in Russia; and suggestions that opposition leaders had set up the murder of opposition leader Boris Nemtsov in March. Content was created for every popular social network, whether it be VKontakte, LiveJournal, Twitter, Instagram, or the comment section of Russian news outlets. Savchuk's goal was to shut the organization down, since she believed that this information war was creating a dark atmosphere in Russia.¹¹⁴⁵

On 18 August 2015 *Kommersant Online* discussed the outcome of a court case involving the same Ludmila Savchuk. She had filed a lawsuit in March or April claiming that she had not been paid. The court ruled in her favor, and she was owed one month of back pay. The main victory in the case, in the opinion of human rights activists, was “an officially obtained company dossier, the disclosure of its activities, and the admission of distress caused to Ms. Savchuk.”¹¹⁴⁶ In effect, the article noted, trolls create a simulacrum of public opinion in favor of government policies and actions, which may be totally made up.¹¹⁴⁷ The Kremlin has denied any involvement with the Agency.

Mission-Impossible: Putin will Disavow any Knowledge of your Actions if Caught

It is now clear that in Crimea and eastern Ukraine the Kremlin used pro-Russian surrogates and Russian Special Forces in masks to take territory while disavowing any knowledge of Armed Forces personnel taking part. In the meantime, these forces gained control of government facilities, broadcasting stations, and political agendas (such as demanding referendums). With these assets under guard, any attack on them could be deemed as a rationale for Russian forces to intervene in order to protect their brethren. Unlike Crimea, the shooting started and

¹¹⁴⁵ Ibid.

¹¹⁴⁶ Unattributed author and title, *Kommersant Online (The Businessman Online)*, 18 August 2015.

¹¹⁴⁷ Ibid.

has continued unabated in eastern Ukraine to the present time, December 2015, and most likely beyond.

Disavowing the presence of military forces is one way Putin protects pro-Russian surrogates or separatists who fall under the use of his self-determination concept. Russia is provoking ethnic Russian enclaves to mobilize and complain about their treatment from the nations beyond Russia's borders where they now reside. Some of these charges have validity, while others appear based purely on trumped up charges and activities stirred up by Russian agents sent to the area. Manipulating the concept of self-determination to their benefit enables a logical rationale for the intervention of Russian forces and the use of psychological pressure, such as issuing ultimatums or demanding referendums. Pro-Russian citizens served as Russia's self-developed catalyst and pretext for intervention in both Crimea and eastern Ukraine.

The newer NATO countries who had been Soviet Republics (the Baltic Countries), or Warsaw Pact members (Poland, Romania, Bulgaria, etc.) were worried the most about the self-determination statement, even though they had left the Soviet alliance of their own volition. More importantly for these new NATO members, surrogate-based trouble does not necessarily trigger a response to NATO's Article 5, the collective defense provision. This Russian methodology in Ukraine, if successful they fear, may serve as a trial run for future interventions the Kremlin in planning. Political subversion may be an old method, but it still works. The warning from the Baltics was that Mr. Putin may have them in his sights.

While Moscow insists that it has unique rights and privileges to protect Russian-speaking populations outside its borders (and special rights regarding "historically Russian" territories), it does not. International law is quite specific and correct at limiting nations that start announcing out of the blue that they have something unique and special that other nations apparently do not. The Kremlin, for example, chose to violate the United Nation's Charter's principles of the equality of all states, the sanctity of their territorial integrity, and noninterference by outsiders in their internal affairs. Further, Russia DEMANDED of Ukraine that it postpone planned May elections, change its constitution

to provide for regional autonomy, make Russian the second official language of Ukraine, and ban certain nationalist political parties. Finally Russia said Ukraine must become a non-allied state, much like a term the Soviet Union placed on Finland during the Cold War.¹¹⁴⁸

To obtain these and other goals that work to the Kremlin's benefit, Russia at times has simply changed its constitution on a whim—be it to develop new terms of office for its former president or to abandon older treaties to which it was bound, as in Ukraine. Russia's leaders have become more cavalier at ignoring international and domestic law and taking matters into their own hands. In the case of Ukraine several laws were broken. Initially the laws were the 1994 Budapest Memorandum and the agreement between Russia and Ukraine regarding the Russian Navy's Black Sea Fleet's arrangement to maintain a presence in Crimea. Once Russian troops removed their insignia and then continuously denied that its forces were even engaged in Crimean operations (which Putin eventually admitted), they had violated the Geneva Conventions. While this may enhance Russia's domestic image in the short term, it will damage its credibility elsewhere in the long term. Russia also had to deal with the fact that former Ukrainian President Viktor Yanukovich was in many ways responsible for the conflict in Kiev, since it was his law in mid-January banning peaceful protests and outlawing opposition group activities that may have been the straw that broke the camel's back and caused the protestor backlash. Breaking laws or imposing them can introduce unintended consequences.

Main Developments in 2014

A temporary ceasefire took hold in eastern Ukraine after a confrontation that lasted several months. In July Ukrainian troops captured Kramatosk and Sloviansk and some pro-Russian equipment as well. Donetsk was surrounded and there were complaints of cross border shelling from Russia into Ukraine. The biggest development of this

¹¹⁴⁸ David B. Rivkin Jr. and Lee A. Casey, "The Outlaw Vladimir Putin," *The Wall Street Journal*, 9 April 2014, p. A15.

month, of course, was the downing of Malaysian Airlines flight MH17. Russia still blames the tragedy on Ukrainian troops in spite of the conclusions of numerous international investigators to the contrary. From the very outset, even before it was clear what airliner had been destroyed, Ukrainian troops had communication intercepts of pro-Russian rebels bragging about downing an aircraft (they thought it was a Ukrainian transport plane) within minutes of the planes destruction.

In August Russia changed the correlation of forces in the area significantly, supplying its own forces and armor to the conflict region. This enabled pro-Russian rebels, surrounded or on the defensive, to conduct a counter-offensive and, along with Russian forces, retake some territory. The apparent goal of this development was to take Mariupol along the Black Sea coast, thereby further developing a corridor from Russia to Crimea. The effort stalled and, by early September, a ceasefire was discussed. The negotiations resulted in the signing of the Minsk protocols on 5 September 2014. It has held, but has witnessed numerous occasional breaks with shelling and casualties reported by both sides. There are reports that over 1000 combatants perished from September to New Year's Day 2015, in spite of the ceasefire, bringing the number of deaths to more than 4000. Further, the Russian air force has on numerous occasions begun violating the airspace of Baltic countries. As a result, the entire region bordering Ukraine remains on edge and off-balance, while Russia continues to build up its forces along the Ukrainian-Russian border and in Crimea. In this regard, Russia has retained its ability to strike at a time and place of its choosing.

Sanctions imposed by the West on Russia have had some effect, but it is uncertain to what extent. Some government sources have warned that a recession is possible in 2015. However President Putin has retained his immense popularity among his domestic population and among Russian citizens living abroad. Putin continued to use the sanctions as a way to point out that the US and European Union are out to encircle Russia and limit the nation's ability to rightfully protect its citizens abroad and allow them (as Russia did in Crimea) to vote (without international monitors) for independence. Putin continues to point out that the threat has returned to Russia's borders, ignoring the fact that it was he who created it. The cause and effect issue was of his

making and resulted in the unintended consequences he is now facing. The West must also, however, ask whether the return of the threat has furthered Putin's agenda.

Meanwhile, Putin's actions have resulted in increased defense spending by its neighbors, promises from NATO to fulfill Article 5 (protect its member states) in case of a conflict with Russia, and a Ukrainian resolution to no longer NOT consider EU or NATO membership.¹¹⁴⁹ In a 2014 year-end review *The Economist* wrote that Putin has a sense of exploitation, resentment, jealousy, and hostility toward the West. These emotions serve his concept of Russia's existential struggle for survival. Russia is the victim in Putin's narrative, and a staunch defender of its interests and values from US influence. Putin stated that "it was in Crimea, in the ancient city of Chersonesus or Korsun, that Grand Prince Vladimir was baptized before bringing Christianity to Rus."¹¹⁵⁰ In this way, Crimea has "invaluable civilizational and even sacred importance for Russia."¹¹⁵¹

Further, Russia's military incursion into Ukraine resulted in three issues of note in 2014: first, Russia created an operational bridgehead in Crimea (explained in detail below) with multiple force contingents (strategic weapons, special forces, unmanned aerial vehicles, fighter jets, etc.) from which Russia could potentially expand operations quickly into Mariupol, Odessa, or Transdnier; second, a temporary cease fire was developed in the eastern part of Ukraine where Putin can buy time and keep neighbors on edge and off-balance. Russia appears to favor frozen conflicts; and third, Russian nationalists could point to a renewed Cold War threat from NATO, wherein military reforms and modernization could find easy Duma funding to confront the threat that Putin had created. These reforms were further assisted through an extensive

¹¹⁴⁹ On 14 August 2015 Russia's *Interfax* news service reported that if Ukraine held a referendum regarding NATO membership in July 2015, more than half of all Ukrainians would vote to join the alliance. The poll did not include the Crimea and occupied territories of Donetsk and Luhansk.

¹¹⁵⁰ "Putin's People," *The Economist*, 13 December 2014, p. 54.

¹¹⁵¹ *Ibid.*

domestic information campaign that told outright lies and exaggerations about Ukrainian forces, resulting in strong domestic support for military action. With public backing it was easier for President Putin to marshal support for the military's aggressive posture, to include a direct intervention into southeastern Ukraine and air violations of the sovereignty of several Baltic nations.

Of contextual importance is that at no time did Ukraine threaten Russia with military force. President Petro Poroshenko's forces have never moved beyond its borders. In fact, Ukraine had drawn down its Armed Forces over the years since the USSR's dissolution to the point that they were so weak that they had practically no military power to affect a situation when Maidan erupted. Equipment was out of date, troops weren't trained well, and most of its force was in the western part of Ukraine. The Ukrainian forces in Crimea did not put up any resistance. Russia was the aggressor on all counts in a peacetime situation. There were also many "sympathizers" working on behalf of Russia in Ukraine in the winter of 2014. After Yanukovich fled to Russia, several hundred former high ranking officials also fled there, offering additional proof of Putin's inside knowledge of Ukraine's inner workings.

Thus, as 2014 drew to a close, two issues emerged for Russian analysts to consider, Russia's newly published military doctrine and Russia's establishment of a military bridgehead in Crimea. Many of the dangers and threats that evolved in 2014 that resulted in the publication of a new military doctrine seem to have been the result of several "unintended consequences" from Russian actions in Ukraine, such as NATO's increased activity in neighboring nations. Russia's reaction to this "new reality" is reflected in several places of the doctrine.

2014 Military Doctrine

Russian leaders had talked about the need for a new military doctrine for some time, and the events in Ukraine and their outcome seemed to underscore this need. At the end of 2014 the doctrine was published, replacing the 2010 version. The document's conclusion noted that:

The provisions of the Military Doctrine may be updated with the changing nature of military dangers and military threats, of tasks in the fields of defense and security, and in the conditions for the development of the Russian Federation.¹¹⁵²

Putin signed the military's new doctrine on 26 December 2014. It followed the basic format of the 2010 doctrine, but added several new and provocative items. Paragraph five of the doctrine noted that military measures would only be used after the exhaustion of other possibilities (political, diplomatic, etc.). This did not take place with regard to Ukraine, since military measures were introduced immediately when Ukrainian President Viktor Yanukovich fled the country. There was no negotiation before Russian forces entered Crimea. Putin's strong arm tactics to induce Yanukovich to follow him and not the European Union failed, and Putin acted with impunity.

Paragraph eleven notes that "The existing international security architecture does not ensure equal security of all states." The international architecture clearly failed Ukraine. Russia gave little passing thought to Ukraine's equal security, having violated it with disregard and later demonstrating that it would use force to resolve the issue. Ukraine never threatened Russia.

With regard to external military dangers (paragraph twelve), many of those present in the new doctrine were Russian induced. Russian actions not only encouraged but actually mandated a NATO response in the Baltics and elsewhere to Putin's actions in Crimea and Ukraine. NATO was treaty bound to ensure the security of its members (who felt threatened by Russian actions in nearby non NATO nations) and so it acted accordingly with the deployment of forces. Did Putin

¹¹⁵² Military Doctrine of the Russian Federation, *President of Russia Website*, 26 December 2014. All other references to paragraphs from the doctrine in this chapter are based on this reference.

want this, a recreated threat so that military modernization could be further sufficiently funded?

Internal military dangers (paragraph thirteen) appear based on the Russian leadership's fear that the population might want to disrupt or disorganize the country's social situation. Russia's leaders have continued to direct blame for any type of disruption at the West. The political leadership, deemed a kleptocracy by author Karen Dawisha for its inherent corruption, does not hold itself responsible for any internal unrest, whereas a case could be made that they are to blame for many of the nation's current problems.

Paragraph fourteen notes that, in regard to main military threats, a show of military force during exercises on territories of states contiguous with Russia is one type of threat to Putin. Since Ukraine never conducted exercises on its border with Russia, Putin's military is clearly referring to NATO's buildup on Russia's borders, a build-up which was "Putin-induced." The military doctrine ignores Russia's own buildup and numerous exercises along on Ukraine's border and later violations of that marker.

Paragraph twenty-one discusses the use of non-military methods to neutralize military dangers and threats, yet Russia did just the opposite, intervening with military methods. Paragraph twenty-three indicates that the decision to employ the Armed Forces was in fact President Putin's, who is designated that power in peacetime.

Paragraph twenty-two noted that the Armed Forces can be used to protect Russian citizens outside the Russian Federation "in accordance with generally recognized principles and rules of international law." This paragraph represents an interesting contradiction in Russia's military doctrine. Russia is willing to point out this provision when it believes its citizens are at risk. On the other hand, it is unwilling to abide by this and other principles and rules located in the new doctrine when someone else's citizens, security, and territory are at risk. Russia's decision makers pick and choose ways to implement the doctrine, and they have a very different cause and effect rationale to explain why military dangers arise.

The Crimean Bridgehead

With regard to Crimea, a strategic bridgehead has been constructed that is brimming with military equipment, one that according to Russia's leaders potentially could include nuclear weapons. The following recommendations and buildup are suggested or underway by Russia's defense and foreign affairs departments with regard to Crimea:

1. Russia proposed negotiations with Turkey regarding the possibility of closing the Bosphorus and Dardanelle straits for ships of non-Black Sea states in accordance with their understanding of the Montreux Convention. Russia is worried that the US naval forces will try to attain access to the area and threaten Russian forces there.
2. Drones, based in Crimea, have violated Ukrainian airspace and continue to monitor the latter's forces.¹¹⁵³ On 25 December Russia reported about the deployment of the Orlan-10 drone system to Crimea, which can fly for eight hours and up to a distance of 150 km.¹¹⁵⁴
3. Russian Foreign Minister Sergey Lavrov noted that, since Crimea is part of a state which possesses nuclear weapons, it can "use its legitimate nuclear arsenal in accordance with its interests."¹¹⁵⁵ That is, nuclear weapons could be placed in Crimea.
4. A fighter regiment was established in Crimea on 26 November, according to a report from *Interfax*. Fourteen fighters (modern Su-27SM and Su-30s) were welcomed to the Belbek airfield.¹¹⁵⁶ It is thought that

¹¹⁵³ *Kiev UNIAN*, 14 December 2014.

¹¹⁵⁴ Yuriy Bogomolov, "For the Combat Readiness of the Highest Limits: They Can See Everything from Above," *Flag Rodiny (Flag of the Motherland)*, 25 December 2014.

¹¹⁵⁵ *Interfax*, 15 December 2014.

¹¹⁵⁶ *Interfax* (in English), 26 November 2014.

- 24 combat aircraft and six combat training aircraft will be at Belbek.¹¹⁵⁷
5. An air defense system with long-range S-300PMU and close-range Pantsir systems are now in Crimea.¹¹⁵⁸
 6. Troops on the Crimean Peninsula include the 501st Separate Naval Infantry Battalion at Feodosiya; the 810th Separate Naval Infantry Brigade and the 1096th Air Defense Missile Regiment of the Black Sea Fleet at Sevastopol, as well as the 126th Separate Coastal Defense Brigade and the 8th Artillery Regiment.¹¹⁵⁹
 7. Russia does not rule out the placement of artillery and missile (in particular, Iskander-M) systems in Crimea as part of an asymmetrical response to any deployment of American missile defense systems in Europe, such as in Romania and Poland.¹¹⁶⁰ ICBMs are ruled out.¹¹⁶¹
 8. The Black Sea Fleet is to be reinforced with a submarine (the Novorossiysk, while a second sub, the Rostov-na-Donu, undergoes operational trials at the moment; a total of six subs are expected) and a patrol frigate (the Admiral Grigorovich) in the May-June 2015 timeframe. Under a federally targeted program the Black Sea Fleet is to receive 30 new warships and auxiliary ships.¹¹⁶²

¹¹⁵⁷ Ivan Petrov, "On Course for the Arctic: Northern Fleet to be Removed from the Western Military District Subordination," *Rossiyskaya Gazeta Online (Russian News Online)*, 27 November 2014.

¹¹⁵⁸ "A Full-Scale Air Defense System Has Been Created in Crimea," *RIA Novosti (RIA News)*, 29 October 2014.

¹¹⁵⁹ Petrov.

¹¹⁶⁰ Vladimir Mukhin, "Russian Nuclear Weapons Draw Near to NATO. Positions for Iskanders Ready Not Only in the Baltic and Belarus, but Also in the Crimea," *Nezavisimaya Gazeta Online (Independent News Online)*, 17 December 2014.

¹¹⁶¹ *Interfax* (in English), 16 December 2014.

¹¹⁶² Yuliya Krymova, "Black Sea Fleet to be Reinforced with Submarine and Patrol Frigate," *Rossiyskaya Gazeta Online (Russian News Online)*, 1 December 2014.

9. On 18 December the Black Sea Fleet's Command and Control Center's territorial structures were placed on alert duty in the Russian Federation National Defense Command and Control Center's Joint System. The Fleet is now part of a system of similar centers created throughout the Armed Forces. All centers can support decision-making at a moment's notice and become factors in strategic deterrence, while monitoring naval activities worldwide.¹¹⁶³
10. In late December it was publicized that an independent submarine brigade was to be part of Russia's Black Sea Fleet.¹¹⁶⁴ Further, as of 21 December, the Crimean Naval Base was restored and became operational. It is located at Sevastopol along with a separate missile brigade of coastal troops. The 126th separate coastal defense brigade is located at Perevalnyy.¹¹⁶⁵
11. It is planned to modernize the Dnepr radar station, located in Sevastopol, which will be part of the missile attack early warning system and work with the space monitoring system. The Russian Black Sea Fleet also has the Podsolnukh short-range radar, which can detect targets up to 450 kilometers away.¹¹⁶⁶
12. A group of forces have been created in Crimea in accordance with the strength limits stipulated by Russia's treaty obligations.¹¹⁶⁷ This increase in troops

¹¹⁶³ Vladimir Pasyakin, "At the Highest Level of Coordination," *Flag Rodiny (Flag of the Motherland)*, 20 December 2014.

¹¹⁶⁴ *Interfax* (in English), 22 December 2014.

¹¹⁶⁵ *TASS*, 21 December 2014.

¹¹⁶⁶ Sergey Vinnik, "They are Modernizing the Dnepr Radar in the Republic of Crimea," *Rossiyskaya Gazeta Online (Russian News Online)*, 22 December 2014.

¹¹⁶⁷ *Interfax* (in English), 22 December 2014.

included seven armed forces commands and eight military units.¹¹⁶⁸

This Russian buildup in Crimea is especially noteworthy since, in December, Ukraine's ICTV reported on the seizure of secret documents that "prove" rebels are planning to stage provocations to destabilize the southeastern regions and seize the sea port of Odessa. Protests conducted by trained militants, pro-Russian activists, and criminals are expected, according to the documents. They state that a total of 600 protesters plan to seize the port and hold it until Russia's armed forces in Crimea arrive.¹¹⁶⁹ Such a plan may have been considered unfeasible in the past but, in light of the manner in which separatist militias took over eastern Ukraine and declared "people's republics," the plan has not only more credibility but probability, especially in light of the buildup in Crimea. Positioning forces there will help ensure a quick takeover of Odessa and the ability to move into Transdnier with speed and efficiency if such a decision is made.

2015: More Fighting, a Ceasefire, and Crimea's Buildup Continues

In early 2015 the fighting for the airport in Donetsk ended, which had been raging for eight months. It fell to the separatists on 22 January. Meanwhile a new front line was established, with the separatists pushing the Ukrainian armed forces back to the west. Ukrainian President Petro Poroshenko believes up to 9,000 Russian troops are in eastern Ukraine supporting the separatists, which is part of Putin's new reality that is denied daily by the Kremlin. In addition Russia is conducting exercises in Southern Russia and in Kaliningrad, putting additional stress on countries in the region. No one is quite sure what Putin is up to. On 31 January, Ukrainian General Oleksandr Rozmaznin was warned by Russian General Alexander Vyaznikov, with whom he was working at the "joint center for coordination and control," that he needed to move from the joint location where they were both monitoring the implementation of the September cease-fire. That is, Vyaznikov was

¹¹⁶⁸ *Interfax* (in English), 22 December 2014.

¹¹⁶⁹ *Kiev ICTV*, 11 December 2014.

aware that the separatists were planning an operation that would threaten the center.¹¹⁷⁰

In early February separatist attention was focused on taking Debaltseve, which has rail links connecting the region. Another goal appears to be to take Avdeyevka, just to the southwest of Debaltseve; and Schastye, to the northeast of Debaltseve. The latter two cities have important power infrastructure. It is unclear if the separatists' plan is to connect these three cities, but if they did, they would be able to establish a front of sorts in the northern section of their Donbas region protectorate. By March 2015 separatist forces had taken most of the sector of eastern Ukraine just as a ceasefire went into effect, finalized when separatists acquired the rail station at Debaltseve. Putin [cynically] said of the Ukrainian army's defeat there that "it is always a hardship when you lose to yesterday's miners or tractor drivers."¹¹⁷¹

From March through August there has been an uneasy truce at the line of contact. Uneasy because there were reports of shelling from both sides throughout the time period.

General Rozmazin, mentioned above, presents the conflict as "a sort of civilizational battle" stating further that "Europe should understand that Ukraine stands on the frontier defending democracy and European Values...That is what we're defending. If we surrender, I have no doubt that the Baltics will be next."¹¹⁷² *New York Times* editorialist Thomas Friedman went further, terming Putin's use of soldiers without insignia that are bought and paid by Moscow as the ugliest geopolitical mugging in the world today. Putin's moves are disguised as a web of lies at which Nazi propagandists would blush. Ukraine matters, Friedman

¹¹⁷⁰ Paul Sonne, "A Russians Retreat Foreshadows Rebel Advance," *The Wall Street Journal*, 31 January-1 February 2015, pp. A1, A7.

¹¹⁷¹ James Marson, "Separatist Advances Imperil Ukraine Truce," *The Wall Street Journal*, 18 February 2015, p. A11.

¹¹⁷² Sonne, p. A7.

writes, more than ISIS, since its government and Parliament share our values. If Putin gets his way, everyone will be in danger.¹¹⁷³

The ceasefire period that took place after the Ukrainian surrender of Debaltseve up to the present time is reminiscent of the earlier ceasefire period from September 2014 to January 2015. It has been frequently interrupted by indirect fire from both sides as well as the preparation of offensive maneuvers. Both sides have continued to prepare laws and agreements that are favorable to the side offering the plan. That is, both sides continue to abide by the February 12 Minsk II agreements in their own way. The separatists continue to assert that they desire local elections under their control, while Kiev wants to administer local elections that are monitored by the international community. On occasion there appears to be links between separatist offensive operations and their advancement of proposals, as if the threat of the offensive will more easily bring Kiev to the negotiating table. Each side is blaming the other for the potential collapse of the Minsk agreements weeks ahead of such a potentiality. Meanwhile indirect fire exchanges continue to accelerate and violations are reported on both sides, with each accusing the other of breaking the ceasefire and not removing heavy equipment from the frontlines. It will be worth following to see if a strong propaganda narrative will be developed to enhance an attack by Russian-backed separatists.

By August Foreign Minister Sergey Lavrov was stating his alarm about developments between Ukraine and the separatists. He noted on 17 August that it appeared the Ukrainian army was prepared for more military action. He noted that it was more appropriate now to talk about a front line than a contact line. He stated that the militia (separatists) took a unilateral position and withdrew weapons to a distance of three km from the contact line but Ukraine did not.¹¹⁷⁴ Separatist leader Denis Pushilin, a senior Donetsk People's Republic defense official, noted that steps

¹¹⁷³ Thomas Friedman, "Ukraine Matters, So West Must Not Waver," *The Kansas City Star*, 30 January 2015, p. A13.

¹¹⁷⁴ *Interfax* (in English), 17 August 2015.

need to be taken to reduce tensions in Donbas, namely having more OSCE monitoring involvement, checking the removal of weapons with a caliber over 120 mm, and signing a document regarding the removal of weapons with a caliber less than 100mm. Pushilin added that “once these weapons are removed, we will effectively record a cessation of hostilities.”¹¹⁷⁵ On the same day the Ukrainian army claimed 148 attacks on its position in Donbas. There were 17 artillery attacks, 59 mortar attacks, 13 rocket launcher attacks, and 70 attacks by small arms and grenade launchers.¹¹⁷⁶ So the beat goes on.

Then, in September, Russia began military operations in Syria. Ever since then, eastern Ukraine has been on edge but no extensive damage or outrage has occurred. Russian analysts indicate the Kremlin’s attention will return to Ukraine in due time. For the moment, it is much more important to confront ISIS’s potential threat to Russia’s underbelly and to support the Syrian army. Putin does not want the Syrian military to dissolve as happened to the Iraqi military after the US intervention over a decade ago.

Conclusions

To view Russia’s actions against Ukraine requires an understanding of the context within which Russia operated and the rationale behind the actions which the nation’s leaders eventually took. The following list is indicative of some of the factors that affected decision-making:

- NATO moving closer to Russia’s borders
- Use of surrogates and separatists
- Ukraine as the historic soul of Russia
- Use of reflexive control measures
- Requirement to control information output
- Development of Putin’s new reality
- Putin’s personality

¹¹⁷⁵ *Interfax* (in English), 17 August 2015.

¹¹⁷⁶ *Interfax* (in English), 17 August 2015.

- Russian expenditures on armed forces reforms
- Perception of external threats to Russia
- Russian logic/strategic thought
- Predispositions against encirclement
- Risk assessment
- Energy issues

Putin has justified his annexation of Crimea by stating that Russia viewed that territory as sacred ground. His actions were based on his version of a new reality, one in which Russia can reclaim territories that were, in his mind, illegally taken away. Part of this new reality was his unintentional (or so it seemed!) recreation of external threats, which were not present to such a degree before his actions in Crimea. His only allies have become these so-called self-declared territories. Perhaps, as one journalist noted, he will soon announce that the self-declared Donetsk and Luhansk republics seized by pro-Russian separatists are his latest allies.¹¹⁷⁷

One of Putin's former advisors, Andrey Illarionov, stressed that Putin's aggression must be punished. If it is not, it will continue. Further, Illarionov stated that a plan to take Crimea and Ukraine had been prepared ten years ago, and that it was leaked in a journal in 2008. According to his account, the first time that Russia considered annexing Crimea was during the Orange Revolution of 2004 but Russian forces were not ready to act in time. The second time was in 2010, when it appeared Yulia Timoshenko would be elected president. That did not happen and the plan was suspended as Yanukovich, who was loyal to Russia, was elected. The next intervention was planned for the 2015 elections but the Maidan events forced a quicker response from Putin. He saw an opening and took it.¹¹⁷⁸

¹¹⁷⁷ Alexander Golts, *Moscow Times Online* (in English), 15 December 2014.

¹¹⁷⁸ Alvydas Ziabkus, "Andrei Ilarionov: West Does Not Notice War That is Starting," *Vilnius Irytas.It*, 25 September 2014.

Illarionov noted two other things: that Putin explained his rationale (his “right”) for retaking Ukraine to former US President George Bush; and that Vladimir Zhirinovskiy confirmed the plan in an interview with the German publication *Bild*. Today, the Kremlin’s weapon is a focused reliance on information, which translates to fabricated facts which are often completely made up and thus impossible to verify.¹¹⁷⁹ Journalists and leaders end up chasing their tails as a result. Finally, Illarionov stated that Russia recently passed a law which allows it to use military force to defend the interests of four types of compatriots outside of Russia: ethnic Russians, Russian-speaking people regardless of nationality, all former Soviet Union citizens and their descendants, and residents of the former Russian empire. Further, he stated that Putin has divided the world into two parts: the Anglo-Saxon world against Russia (the US, UK, Canada, Australia, Baltic States, Poland, and Romania), and continental Europe, which is inclined to make compromises with Russia (Germany, France, Italy, and Spain).¹¹⁸⁰

It thus appears that after a few successes in Chechnya and Georgia, combined with a slow return to normalcy in the country and an examination of the cards he had to play in Crimea, Putin gained a second wind that has enabled him to overcome earlier career humiliations. The success of the winter Olympics in Sochi solidified this feeling, which was temporarily ruined with the fleeing of Ukrainian President Yanukovich to Russia.

Putin has righted part of his perceived geopolitical wrong (the collapse of the USSR) quickly with his movement into Crimea and eastern Ukraine. He is basking in the light of these successes, as the recent opinion polls suggest, which note that his popularity in Russia is at an all-time high. The fear in the West should be that, based on the outcome in Crimea, Putin may be motivated to once again reread his favorite nationalist philosophers and reenergize his risk calculations and put them in play.

¹¹⁷⁹ Ibid.

¹¹⁸⁰ Ibid.

Madeleine Albright, writing about Vladimir Putin in April 2014 in *Time* magazine, noted that the leaders of great countries are most dangerous when they make up their own facts.¹¹⁸¹ Putin's propaganda team has developed a rhetoric that corresponds only to Russia's concocted idea of a new reality that envisions Russia reclaiming lost territory and constantly blaming the West for his problems. The facts and story line that serve as the rationale behind Russia's maneuvers in Crimea and Ukraine are full of half-truths and outright lies. Neighboring countries see through this line of conversation and overt attempt at manipulation. They are putting up defenses against it and joining hands to create a united front against Russia.

It is now obvious that Russia is not interested in stabilizing Ukraine. It is, in fact, more interested in destabilizing that country. Russia was able to buy time through negotiations in Geneva and agreeing to terms it knew or suspected it might violate. This tendency has continued. Russia, it appears, continues to seek to control eastern Ukraine and its industrial output, which is sorely needed by Russia's defense industry. The Kremlin is doing this by creating a chaotic information environment in which people grow tired of confrontation and disruption and ask only for stability and a return to the status quo. The abduction of OSCE inspectors underscored both the intimidation and disruptive aspects of this strategy. The storming of the local television tower in Donetsk and the switching of its signal to a pro-Kremlin channel was another indicator. The separatist rebellion, allegedly supported by the Kremlin, desires to turn Donetsk and other cities such as Slovyansk into a sovereign republic within Ukraine. Following the Crimean game plan, the separatists are asking for a referendum on the Donetsk region, while still denouncing the new government in Kiev.

¹¹⁸¹ Madeleine Albright, "Vladimir Putin: The Leader Who's Testing the West," *Time*, April 2014, p. 103.

US responses are focused more on Putin than on the actions of the pro-Russian separatists in Ukraine, which are being left to Kiev to handle. US sanctions aim to punish the Kremlin for violating international law. Some believe they are aimed at uncoupling Putin from the Russian people through economic means, but this is not the primary reason. Deputy National Security Adviser Tony Blinken noted recently that Putin “had a compact with his people, and the compact is this: I’ll deliver economic growth for you if you remain politically compliant.”¹¹⁸²

Growth is becoming more painful after the initial gain of acquiring Crimea. The question for the immediate future will be who is holding the best cards: Putin’s authoritarian regime that wants to develop a new post-Cold War order and ignore the Obama administration’s reset option; or the sanctions to be delivered by the West in a united stand against Putin. The clock is ticking on the decisions that will alter the state of European affairs for some time. In short, as long as a delicate balance remains in place, there is still a chance for a negotiated outcome.

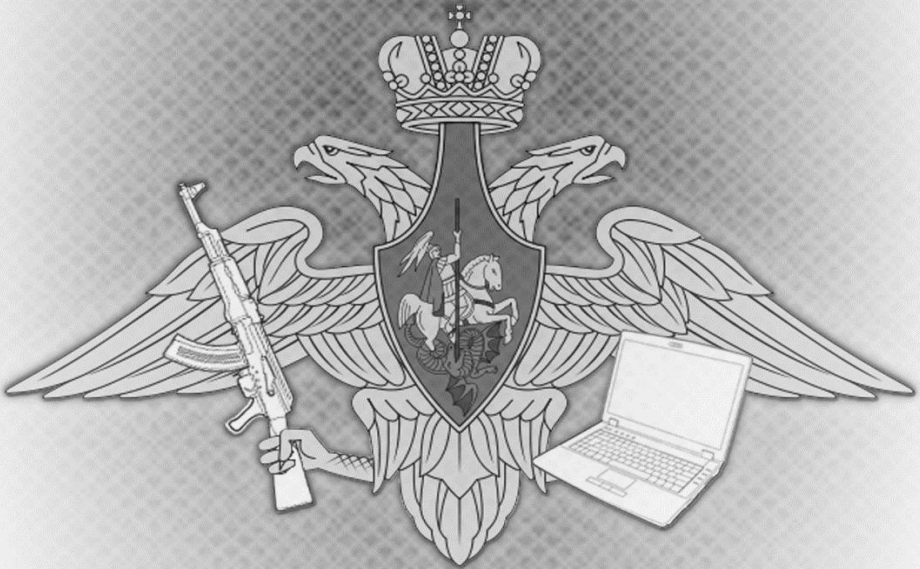
¹¹⁸² Scott Patterson, Colleen McCain Nelson, and Naftali Bendavid, “New Curbs to Target Putin’s Inner Circle,” *The Wall Street Journal*, 28 April 2014, p. A6.

CONCLUSION

RUSSIA

MILITARY STRATEGY

IMPACTING 21ST CENTURY REFORM AND GEOPOLITICS



CONCLUSION

CHAPTER TEN: WHAT DOES IT ALL MEAN?

This book was divided into three sections, addressing Russian methods of approaching strategy, future war (focusing on new weapons, organizations, and theory), and geopolitics (Arctic and Ukraine). All three are important to consider when attempting to comprehend the vector(s) in which Russian military capabilities and actions are heading. The book tried to develop Russia's traditional military thought along with its contemporary utilization.

Putin

With regard to Chapter One, "Vladimir Putin: Patriot, Zealot, or Threat?" much has been written and much revealed about him over the past few years. The following summarizes what was discussed:

- He is a man of convictions, surprises, and risk-taking who enjoys pressuring people. He reads situations well and gets results but also new problems, since his actions often produce unforeseen responses. He focuses on regime survival and is beset with worries over conspiracies and color revolutions. He is a Russian nationalist.
- He has garnered respect and popularity for his policies among the majority of the Russian population. He supports the church and is a fighter who will not be pushed around. He appears to think the West is weak and thus asserts himself more now than in the past, more often acting with impunity.
- He is an opportunist. When opportunities are present, he will take action. His move into Crimea was nothing short of brilliant. He considered a host of factors working in his favor (a tired US military, German support, etc.) and acted, undoubtedly, in lock-step with the Federal Security Service (FSB) and military. In Syria, some think he waited too long. He supported Assad for two reasons: his southern border was threatened, and he saw the need to save the Syrian

- army or face a catastrophe similar to the US fate in Iraq when the latter's armed forces disintegrated.
- He felt betrayed by the West for the movement of NATO countries nearer to his border, which several politicians indicated would not happen. This is perhaps THE major motivator for his actions against the West. He has repeated this theme consistently and stated that Russia will no longer, from his perspective, be humiliated by broken promises. Supporting the West by, for example, allowing logistics to pass through Russia and help the West to fight in Iraq backfired, from his perspective, in the face of NATO expansion.
 - He is focused on regime survival, as best witnessed by the changing of the Russian constitution so that he could take another term as President. As an authoritarian leader, he fears coups and color revolutions from below or above. He sees conspiracy theories everywhere that are aimed to overthrow him. Working behind the conspiratorial scene, in Putin's opinion, is the US's CIA. The West is seen as the responsible culprit in most all cases where he has problems.
 - He has created his own reality, one that relies on misinformation and ambiguity and assists in the continuation of his agenda. For example, he refuses to admit where he has played his hand and failed. The pressure he applied to Ukrainian President Victor Yanukovich to abandon his decision to side with the European Union is a good example, which resulted in the Maidan uprising. Putin assisted in the development of chaos.
 - He has ordered the rewriting of history books to fit his agenda; stressed the need to protect Russians living abroad; and is worked behind the scenes to garner favor in Ukraine with pro-Russian supporters. More

importantly, he needs to find a way to reenergize the economy.

As 2015 drew to a close, a host of problems were confronting Putin. His good friend Sepp Blatter, head of The International Governing Body of Football (US soccer, FIFA) organization, who had awarded Putin the world cup for 2018, was charged with corruption. Putin responded by nominating Blatter for a Nobel Peace Prize. Russian athletes were charged with doping and humanitarian groups charged Russia with multiple violations of its policy. A Russian plane in Syria was blown out of the sky by a Turkish asset and a civilian plane leaving Egypt was blown up by a bomb onboard, allegedly placed there by ISIS. Sir Robert Owens's report on the death of Alexander Litvinenko was that his assassin's "probably" acted on Putin's orders (one of the suspects was decorated for his actions, which were not explained). The military is involved in multiple conflicts and is seemingly overextended. Putin was probably happy to see 2015 end.

Putin described 2015's events and its difficulties in a December meeting with the media, which has become a yearly event. His assessment is different from the items discussed above:

- He blamed oil prices for the Russian government's failure to meet its economic forecasts. He tried to convince people that the Russian economy has gotten through the crisis.
- He sees no prospects for improvement in government relations with Turkey, but says he likes Turkish people. He said he will not back down and placed an S-400 in Syria.
- Russia and the US's position on Syria largely coincide, he noted. But no one from the outside should be allowed to impose on a country who their ruler should be. To settle Syria, joint work needs to be done to draw up a constitution; and a transparent mechanism of control over future elections that everyone would trust must be established. Putin said

he will support the offensive of the Syrian Army for as long as the Syrian Army is conducting it.

- Putin said Russia is not interested in an escalation of the fighting in Ukraine. He said Ukraine is manipulating the Minsk agreements to their benefit and for that reason the agreement hasn't been implemented, which Russia wants.
- He said the appointment of former Georgian President Mikahil Sashvili to key posts in Ukraine is like spitting in the face of the Ukrainian people. Out of 45 million people, there is no one better than him, he asks?
- Russia and Ukraine should have an "all for all" prisoner exchange.
- Russia, he said, is not planning to introduce sanctions against Ukraine but it will lose its free trade zone benefits as of 1 January and will have to pay tariffs.
- The Georgian war is the fault of Georgia and Saakashvili, historical guilt is on their side entirely and completely. Russia is ready to improve relations.
- With regard to FIFA, no country has the right to extend its jurisdiction to other states. It was improper to bring officials to the USA. We should wait to see the outcome of the investigation. Blatter deserves a Nobel Prize for all the good work he has done.
- Putin said he is ready to work with any new US president.
- He does not know if there is a need for a Russian military base in Syria.
- He is against doping and wants it to be stopped.
- Putin was asked if a dangerous second generation of elite corruption has grown up. Igor Rotenberg, son of a Putin associate, has collected the new levy on vehicles over 12 tons driving around Moscow (and no one appears to know how it is being spent); Pskov governor Turchak was accused of involvement in beating up journalist Oleg Kashin; and Russian

Prosecutor-General Chayka's family has been accused of corruption. He played down the significance of these allegations, and said on one occasion that he didn't want to talk about any of these charges but that didn't mean the regime wasn't working on it.

- Russia will have to raise the retirement age as people are living longer and exhausting the pension system.
- He does not see the Saudi Arabia-led coalition against ISIL as "anti-Russian." But he asks whether another alliance is really needed?
- He is for the exposure and punishment of those who murdered Nemtsov. A stable political system inside Russia is more important than protecting someone.
- He said falling oil prices will not affect the 2020 State Armaments Program.¹¹⁸³

But that was in December. Earlier, on 3 July 2015, Putin stated that he had recently requested a new analysis of the range of challenges and risks (political, economic, information, etc.) before Russia and, on that basis, would make adjustments to Russia's national security strategy (NSS). Clarifications, if the need arose, would be incorporated into Russia's foreign policy plans. Cooperation with other nations was available "on an equal footing" and collective action was possible on key items on the international agenda.¹¹⁸⁴ (See next section for his NSS input.)

With such input it is clear that Putin has the final word on all important decisions in the foreign policy and especially the national security agenda of Russia. He harnesses a host of inputs, from geopolitical, reflexive control (RC), and deterrence specialists to nationalist philosophers who shape his thinking and the policies that will form his response to future security environments. His policies are aggressive and focused on reinstating the territory that existed during the

¹¹⁸³ *Rossiya 1 TV (Russia 1 TV)*, 17 December 2016.

¹¹⁸⁴ *Rossiya 24 TV (Russia 24 TV)*, 3 July 2015.

Soviet era, which has resulted in NATO countries strengthening their borders against potential Russian incursions. For every action there is an opposite and equal reaction as Putin is finding out. Europe represented a somewhat stable aspect of his international environment in comparison to his immediate south, but he failed to see it that way.

He cites the requirement for equal security, which means matching the West system for system in order to guarantee Russian security and sovereignty, while at times using his rationale to ignore standard international laws of behavior. With the serious threat to his south in the form of the Islamic State and the Taliban, one would think that he would embrace European security structures as a reliable architect of stability and even assistance.

The changes to the international situation have seriously hurt the Russian budgetary process. The sanctions imposed by the West have hurt the economy but perhaps not as bad as the drastic drop in oil prices. Still, Putin has not backed off and has continued to support all of the major military development programs he initiated. Meanwhile the ruble continues to fall and people are becoming more and more dissatisfied.

What does it all mean for Putin? First, it means that he is now experiencing the blowback from policies that he has implemented over the past three years. The economy is in worse shape than at the start of the year, corruption charges are mounting against members of his regime, and his popularity will undoubtedly take some hits soon if the situation doesn't change. Second, Putin is a fighter who refuses to back off, one who acts with impunity. However, he must be seen as well as a chameleon who can change colors to fit the situation. He will adapt and move the nation forward, but he may have to accept more cooperation with the West in order to do so. That will be hard for him to do, but expect him to take advantage of President Barrack Obama's lame-duck situation. He and his staff will innovate and develop new methods of attack or influence options in 2016, both nonmilitary and military.

Strategy

With regard to Chapter Two, "Russian Military Strategy," the focus was on the continuity of Russian military thought over the years, a

contention very few analysts seem to be making these days. Russia's military leaders continue to rely on the heritage of great theorists such as Alexander Suvorov and A. A. Svechin. General Valery Gerasimov, chief of the Russian General Staff, made this point clear in 2013. He used Svechin's thoughts to note that each conflict has a logic all its own, and this has clearly been the case in each recent conflict in which Russia has been involved.

As one looks over the course of several decades Russian strategic thought uses many of the same devices to develop strategy. They are excellent at forecasting the operational environment, taking a hard look at the many factors that compose what a Marxist refers to as objective reality. This examination makes up the essence of an overall assessment of the correlation of forces (COF), which compares various elements of reality and then a decision is made as to where advantages (and opportunities) lie. NATO now is approaching 300 tanks and armored personnel carriers in countries bordering on the Russian Federation, according to Russian sources. This is enough for a full division.¹¹⁸⁵ This announcement was followed, as might be expected, by a statement that the Western Military District had been improved with the addition of three divisions of equipment. Thus, the COF then was placed at 3:1 in favor of the Russians. Further, the former head of the Main Operations Directorate of the General Staff, General-Lieutenant A. V. Kartapalov, was removed from that position and given the command of the Western Military District, which faces the Baltics. If there is a war, a well-qualified officer is now in charge of the area.

During the course of the past two years, Russian involvement in several conflicts has caused it to dramatically reassess its doctrine and strategy. It is hard to remember if there has ever been a time of such overhaul. The *National Security Strategy (NSS)* of 2009 was followed by

¹¹⁸⁵ Vladimir Mukhin, "Tanks Will Add Strike Power to General Shamanov's Landing Force. Russia May Relocate Heavy Combat Equipment to the Western Sector in Response to the Creation of NATO Mobile Forces," *Nezavisimaya Gazeta Online (Independent News Online)*, 12 January 2016.

new military doctrines in 2010 and 2014 and even a new naval doctrine in 2014. Then, in December 2015 a new *NSS* was produced, and a few days later Russian military officials stated that a new military doctrine might be necessary. There is a planned February 2016 release of a new information security doctrine. The scale of doctrinal and policy developments in such a short period of time appears to be unprecedented.

Putin first mentioned that a new *NSS* was under development in July 2015. Nowhere in the document is the term strategy actually defined, so its definition is left to the discretion of the reader. However, the document itself was defined as “the basic strategic planning document defining the Russian Federation's national interests and strategic national priorities, objectives, tasks, and measures in the sphere of domestic and foreign policy aimed at strengthening the Russian Federation's national security and ensuring the country's sustainable development in the long term.”¹¹⁸⁶ It consolidates the efforts of the organs of state power, and it is the basis for the shaping and implementation of state policy.

There were three items of special interest in the *NSS*. First, the *Strategy* used the term struggle on two occasions, but the sentences containing the word may be some of the most important in the document. Struggle indicates an active confrontation among various factors for control, where east meets west, and is an area that the West should consider to remain as a point of contention. There is a struggle underway, the *Strategy* notes, for resources, access to markets, and control over transportation arteries. This is a clear reference to the Arctic as a primary focus of attention. There is also a struggle for influence in the international arena, which includes the use of political, financial-economic, and information instruments. Included in the discussion was a section on “indicators for evaluating the state of national security,” factors that will purportedly allow Russian security officials to know if

¹¹⁸⁶ “The Russian Federation’s National Security Strategy,” *President of Russia Website*, 31 December 2015.

and to what extent the *Strategy* is being fulfilled and implemented.¹¹⁸⁷ To a certain degree, this resembles the US concept of measures of effectiveness.

Second, the document defined Russia's national security as:

The state of protection of the individual, society, and the state against internal and external threats in the process of which the exercise of the constitutional rights and freedoms of citizens of the Russian Federation (hereinafter citizens), a decent quality of life and standard of living for them, sovereignty, independence, state and territorial integrity, and sustainable socioeconomic development of the Russian Federation are ensured. National security includes the country's defense and all types of security envisioned by the Russian Federation Constitution and Russian Federation legislation—primarily state, public, informational, environmental, economic, transportation, and energy security and individual security.¹¹⁸⁸

Third, the Russian Federation's objective is defined in the document as the attempt to acquire as many equal partners as possible in various parts of the world. Perhaps this is an effort to offset today's or tomorrow's sanctions. Goals include national defense goals, which are defined as the creation of conditions to develop and ensure military security. Goals are achieved by implementing military policy through strategic deterrence, preventing armed conflict, improving military organizations and forms and methods for armed force deployments, and increasing mobilization readiness according to the document. Strategic deterrence is the result of the interrelated political, military, military-technical, diplomatic, economic, information, and other measures, such as maintaining the capacity for nuclear deterrence. Strategic interests and

¹¹⁸⁷ Ibid.

¹¹⁸⁸ Ibid.

priorities, values, and future partners are highlighted as well as numerous threats to national security.¹¹⁸⁹

What does all this mean for people examining Russian strategy? It indicates continuity of thought in the Russian military that fuses the traditional elements of foresight/forecasting and the correlation of forces criteria with modern day indirect, asymmetric, and nonmilitary measures. What becomes important after considering the strategic thought behind the many military reforms and new policies/doctrines is to predict what Russia plans next. Strategic thought and technological advances, pushed by Putin's desire to reclaim a lost heritage, are driving the train for geopolitical advances. Understanding strategy helps unravel where and why Putin is or may be acting. Decisions will apparently also be based on calculated risk-taking, the use of surprise (reflexive control), legal measures, and other cards that Putin can put in play. The advanced capabilities of new weaponry and equipment clearly help enable any plans that are developed.

Indirect, Asymmetric, Non-Military

With regard to Chapter Three, "Hybrid or Nonmilitary War: Which is It?" it is clear that the West has offered a number of theories to describe Russian actions. Unfortunately, none reflect correctly what the Russians say they are actually doing. Hybrid, ambiguous, new generation warfare, non-linear, and other such terms have been used to describe Russian actions. In turn, the Russians state that it is the West using these methods. For example, Russia states that only the West is employing hybrid warfare operations. A recent 2015 article in *Military Thought* supported this line of thought. Titled "Hybrid Operations as a New Kind of Military Confrontation," the article begins with the following quote:

Hybrid warfare, a concept that was born and gained currency in the West in the early 2010s, is, in the view of foreign experts, a new form of combat operations. Hence, our first concern is weighing the possibility of hybrid

¹¹⁸⁹ Ibid.

warfare operations being conducted in Russia by forces having a vested interest in destabilizing the current situation in this country. A hybrid warfare operation is, to our mind, an attempt to cut off a part of another country's territory by using a combination of coordinated political, diplomatic, information, propaganda, financial, economic, and military measures.¹¹⁹⁰

Clearly the reference is to the West using these operations and not Russia. The authors cite (in addition to Special Forces) numerous US sources and then label nonprofit organizations, private military companies, environmentalists, and other units as organizers or implementers of hybrid operations. They sum up the article noting that "there is a growing probability that Russian territory can be used as the battleground for a hybrid operation conducted peacefully or with the force of arms," again implying that this would be a Western operation on Russian soil.¹¹⁹¹

Russia's military (and President Putin) appears to focus on five significant threats from their perspective. They are the US's Prompt Global Strike concept; a global ABM system; color revolutions; cyber-attacks; and an ISIS threat to the south. In the latter case, the Caucasus 2016 strategic command-and-staff exercises appear designed to indicate the Armed Forces preparedness to defend the country's southwestern sector against an ISIS threat in this territory. There is also a significant cross-domain deterrence action that is ongoing. These actions were explained in the chapter and are geopolitical (equal security), information (Status-6 torpedo), legal (UN declarations of the Foreign Ministry), international (keeping friends close by), cyber (attack demonstrations), and others. These are significant efforts to contain or intimidate opponents.

¹¹⁹⁰ V. A. Kiselyov and I. N. Vorobyov, "Hybrid Operations as a New Kind of Warfare," *Voennaya Mysl' (Military Thought)*, No. 5 2015, pp. 41-48.

¹¹⁹¹ *Ibid.*

Reflexive control (RC) is a concept that continues to be discussed and used in Russia. Since the term is not widely used in the West, it was probably not recognized as being part of the definition of information war (IW) that the Russian military used in 2011. In that document, *Conceptual Views on the Activities of the Armed Forces of the Russian Federation in Information Space*, IW was defined as the ability to, among other things, undermine political, economic, and social systems; carry out mass psychological campaigns against the population of a state in order to destabilize society and the government; and force a state to make decisions in the interests of their opponents.¹¹⁹² The latter phrase lines up well with the definition of RC, the idea of someone doing something allegedly for his own benefit that, in reality, is of benefit to you. The concept of RC has existed much longer than the concepts of IW and information operations; in fact, it appeared in Soviet military literature 30 years ago. At that time, V. A. Lefebvre, who was working within the context and logic of a reflexive game, defined reflexive control as “a process by which one enemy transmits the reasons or bases for making decisions to another.”¹¹⁹³

What does this mean for those studying Russian thought? The most important lesson is the necessity to study what Russian military theorists are saying about operations and not apply or force templates the West or others have developed on Russian actions. Applying the wrong template can lead policy and decision-makers in the West to make improper calculations and decisions about Russia’s future plans.

Military Reform and Future War

With regard to Chapter Four, “New Technologies and Equipment,” a number of new developments were discussed. The impetus for reform had been felt ever since the 2008 war with Georgia,

¹¹⁹² *Conceptual Views on the Activities of the Armed Forces of the Russian Federation in Information Space*, Ministry of Defense of the Russian Federation, 2011.

¹¹⁹³ Vladimir E. Lepsky, “*Refleksivnoe upravlenie v polisubektnikh i mnogoagentnikh sistemakh* (Reflexive Control in Multi-object and Multi-agent Systems),” an article given to the author, p. 1.

when equipment was clearly inadequate for the conduct of future conflict. Organizationally, this included the development of science companies, new theaters of military operation, a DARPA-like structure, a revision of the number and boundaries of the military districts, and the transformation of divisions into brigades (and some brigades back into divisions); technically, this included the development of numerous types of UAVs, new radars, missile complexes, air defense systems, cruise missiles, electronic warfare, and recon-strike assets; and doctrinally, this included the development in 2014 of a new military doctrine, in 2015 of a new naval doctrine, and the assessment that aerospace is the new center of gravity. These are not slow times for Russia's military, especially as it develops contingency planning for potential operations in Ukraine, the Arctic, Trans-Dniester, and Syria simultaneously—and don't forget Russia's Southern Border and the constant threat of military action in Chechnya.

Technologically, there is great pride attached to the new equipment under development. This was most clearly demonstrated at the Army Forum 2015 held at Kubinka, an event that had great significance for the military and its attempts to foster and nurture interest in the Armed Forces. The forum was held at the RF Military-Patriotic Recreation Park, which has been created for year-round use. It will have three congress-exhibition segments (closed-exhibit areas, pavilions covering 45,000 square meters, and open areas of some 120,000 square meters). These exhibits will foster international military-technical cooperation. Other areas at the park include a zone for re-enacting historical events, a military sports zone, a museum zone, and a culture-and-leisure zone. Visitors will be able to experience some applied military activities, such as parachute jumps, opportunities to fly in light aircraft, and the chance to run a combined-arms obstacle course. People will be able to reach events by both railroad and vehicular transport.¹¹⁹⁴

¹¹⁹⁴ Zleksey Solomin, "Interview with Vyacheslav Presnukhin (Head of the Russian Defense Ministry's Main Directorate for Research Activities and Technological Support of Advanced Technologies)," *Ekho Moskvy Online (Echo Moscow Online)*, 27 June 2015.

Financially, the military's budget has been established but due to dropping oil prices it continues to be readjusted. It appeared at one time that ground troops would receive only 16 percent of the entire amount of the State Armaments Program for 2020. However, the government is preparing a Separate Ground Troops Interdepartmental Integrated Development Program, which would become a component of the 2025 State Armaments Program. Ground troop missions continue to include covering the main strategic axes and participating in both the neutralization of local armed conflicts and peacekeeping operations.¹¹⁹⁵ In this regard it was noted that

A Ground Troops grouping already covers the Arctic Strategic Access; precisely RF Ground Troops representatives did not permit the development of a military conflict in the Crimea during the spring of 2014; and RF peacekeeping formations are prepared to accomplish their designated missions in local conflict zones in the Donbass, on the border with Afghanistan, and at other hotspots.¹¹⁹⁶

Russia's Center for the Analysis of Strategies and Technologies published a long report in April 2015 in regard to the State Armaments Program. It noted that in 2012 Deputy Prime Minister Dmitri Rogozin stated that defense priorities included automated command and control systems, battlefield visualization, robots, modularity, and a good electronic component base. Now, some three years later, it is possible to list a few of the items that are fulfilling these priorities. They compose, to a certain degree, what Russia might consider for its Ground Troops as a "Big Five" package of technological advances:

¹¹⁹⁵ Vladimir Mukhin, "Wars and Armies: Battalions are Requesting Super-Weapons: The Threat of local Conflicts is Compelling the RF to Accelerate the Adoption of the Ground Troops Integrated Development Program," *Nezavisimaya Gazeta Online (Independent News Online)*, 15 May 2015.

¹¹⁹⁶ *Ibid.*

1. Ratnik: this is an infantry fighting system that incorporates weaponry, personal protection, connectivity, and other functions. For 2015 and 2016 50,000 sets have been ordered. Ratnik-2 sets are being researched for the years 2025-2030.¹¹⁹⁷ Ratnik can reportedly protect up to 95 percent of a soldier's body surface from fire and shrapnel. Third-generation combat gear is under development. It will integrate different biomechanical devices, including exoskeletons.¹¹⁹⁸ To a degree, Ratnik covers Rogozin's desire for robotics and command and control.
2. Strelets: this tablet-based reconnaissance system is composed of a commander's personal computer, a satellite communications radio, a VHG radio, a range-finder and angle-measuring device, a Fara-VR portable short-range reconnaissance radar, transmission apparatus, an IFF system, and systems operating with GLONASS and GPS data. It has been incorporated into the Ratnik system.¹¹⁹⁹ It can receive information from drones and transfer target coordinates to a command post. It has protected radio communications, so speech, images, and videos can be transmitted by it. The system is compatible with devices using laser range finders and other navigation devices. It unites all sensors into one system and gives commanders a comprehensive picture from which to make decisions.¹²⁰⁰ The main purpose of Strelets is "its level of immediacy in transmitting

¹¹⁹⁷ *RIA Novosti (RIA News)*, 8 June 2015.

¹¹⁹⁸ Anton Valagin, "Russian Military Gear Will Include an Exoskeleton," *Rossiyskaya Gazeta Online (Russian News Online)*, 17 June 2015.

¹¹⁹⁹ Yuriy Gavrilov, "Navigation Device for the Soldier, Tablet for the Commander. Troops Being Equipped with New Control and Communications Package," *Rossiyskaya Gazeta Online (Russian News Online)*, 23 December 2014.

¹²⁰⁰ *Interfax (in English)*, 25 December 2014.

intelligence about the enemy to fire destruction units.”¹²⁰¹ Strelets fits the command and control and visualization components of Rogozin’s prioritized list.

3. Krasukha-2/Krasukha-4S/Krasukha-20: There is overlap among these three systems. However, their technical capabilities are heralded by the military-industrial complex as gold, as one of a kind. All of the systems analyze signals and have jamming capabilities. They can purportedly insert themselves into a long-range radar detection system such as an AWACS-type system and project virtual targets. Russian inventors state that the result is that an AWACS-type device can be made to attack their own military facilities, since they are made to appear hostile to them when penetrated by a Krasukha system and they provide virtual targets to the AWACS.
4. Andromeda-D: this system allows for video conferencing with any command and control center. If one channel is jammed, communications move to alternate channels. The system still requires cables and several trucks.¹²⁰² This is another command and control item for Rogozin.
5. Platforms: the report of the Center for the Analysis of Strategies and Technologies noted in regard to Ground Troops that one of the main directions of future armaments programs should be the “launch of mass purchases of brigade sets of tanks and other vehicles based upon the Armata Platform.”¹²⁰³ Other platforms were equally stressed, such as the Kurganets-25 and

¹²⁰¹ Yuriy Belousov, “With One Movement of the Stylus: Latest Reconnaissance-Fire System Being Successfully Introduced in Central Military District Troops,” *Krasnaya Zvezda Online (Red Star Online)*, 20 January 2015.

¹²⁰² Ivan Petrov, “No Blocking or Jamming. Paratroopers’ Communications Move to a New Level,” *Vechernyaya Moskva Online (Moscow Evening News Online)*, 6 May 2015.

¹²⁰³ Unattributed report, “Russian Federation State Armaments Programs: The Problems of Execution and Optimization Potential,” *Center for the Analysis of Strategies and Technologies*, 21 April 2015.

Boomerang platforms.¹²⁰⁴ Reports indicate that the development of remotely controlled combat platforms, including platforms using 7.62 mm machine guns, is underway.¹²⁰⁵ This serious shift in the paradigm for developing domestic armored vehicles resembles the modularity criteria in Rogozin's priority list.

Aerospace

With regard to Chapter Five, "Aerospace and Strategic Rocket Forces," one officer noted that the center of gravity of future conflicts will be the aerospace sphere. It comes as no surprise that the June 2015 issue of *Military Thought*, then, contained only articles on aerospace topics. A few examples from the nine articles in the issue are "The Development of International Cooperation in Missile Attack Warning," "Features of a Modern Methodology for Testing an Aerospace Defense's Armament Systems," "Substantiating the Requirements for Computer Technology Regarding the Means and Systems of Aerospace Defense," and "Basic Problems of Modeling the Systems and Means of Aerospace Defense Based on Advanced Information Technologies."¹²⁰⁶ It was noted that by 1 August "the headquarters of the Air Force's 1st, 2nd, 3rd, and 4th Air Force and Air Defense commands will be reorganized as the 6th, 14th, 11th, and 4th Air Force and Air Defense armies respectively."¹²⁰⁷ So far there has been no confirmation of this realignment. The Air Defense and Missile Defense commands of the Aerospace Defense Troops will become an army, and the reorganization of the Long-Range Aviation and Military-Transport Aviation Commands into the Supreme High Command's 37th and 61st Air Armies is also being considered.¹²⁰⁸

The August announcement that an Aerospace Force (VKS) had been created as a response to the US Prompt Global Strike program came

¹²⁰⁴ Ibid.

¹²⁰⁵ *Rossiia 24 TV (Russian 24 TV)*, 18 October 2014.

¹²⁰⁶ *Voennaya Mysl' (Military Thought)*, No. 6 2015, Table of Contents.

¹²⁰⁷ Unattributed report, "Air Force and Air Defense Armies Will be Created in Russia," *Lenta.ru*, 2 March 2015.

¹²⁰⁸ Ibid.

as no surprise, since Russian officers had been speculating on its creation for over a year. The VKS combines the Air Force, Air Defense and Missile Defense Forces, and the Space Forces, but keeps the Strategic Rocket Forces separate. There has been a special focus in the press on the latter's mobile missile launchers (Iskander-M, Barguzin, Sarmat, etc.), hypersonic missiles, lasers, weapons based on new physical principles (directed energy weapons, etc.), unmanned "sixth-generation" fighter jets, and other such weaponry that indicate the primary direction, in accordance with the center of gravity concept, that the military is moving. For example, with regard to hypersonic weapons, Lieutenant General Alexander Leonov of the Ground Force's Air Defense Troops, stated that new-generation air-defense weapons are needed, including those based on hypersonic technologies.¹²⁰⁹

Future War

With regard to Chapter Six, "Russia Prepares for Future War," there were several developments. Doctrinally, Russia's forecasting of future war has resulted in new military and naval doctrines. Much has been written about the 2014 military doctrine, where there is consideration regarding how war will appear in the age of technology and thus what elements are required of a new force. The 2015 naval doctrine, according to Deputy Prime Minister Dmitri Rogozin, has four functional areas and six regional areas. The four functional areas are naval activity, marine transport, marine science, and mineral resource development, and the six regional areas are the Atlantic, Pacific, Arctic, Antarctica, and Indian Oceans, and the Caspian Sea. The stated reason for the doctrine was the increase in Russia's position as a sea power.¹²¹⁰ As a rising sea power, responsibilities must be laid out and the doctrine defines such areas.

In June 2014 the Defense Ministry's Advanced Interbranch Research and Special Projects Directorate listed its own research

¹²⁰⁹ *Interfax* (in English), 28 December 2015.

¹²¹⁰ Unattributed report, "Russian Federation Marine [Naval] Doctrine 26 July 2015, Baltiysk," *President of Russia Website* (in English), 27 July 2015.

priorities, and many appear to be future war projects. They were UAVs, EW assets, interbranch and system-wide research to develop military and special equipment, unconventional weapons (lasers, microwave, high-velocity kinetic energy, nonlethal, and hypersonic weapons), robotic complexes, and special assets. Examples of completed work included the following:

- Development of a ramjet engine; onboard precision inertial navigation systems based on precision sensors; low sensitivity explosives; and radar-transparent heat-resistant materials and coatings, which have become the basis for creating a hypersonic air-to-surface guided cruise missile
- Creation of technologies for the detection, selection, and monitoring of the damage to electro-optical equipment and thermal damage of missiles equipped with optical homing heads in the process of creating an airborne laser complex
- Creation of an interbranch artillery system based on an electro-thermochemical method of propelling armor-piercing discarding-sabot projectiles with increased muzzle velocity and velocity in the interests of creating an advanced armored fighting vehicle
- Development of very short-pulse radars based on a solid-state active phased array realizing modes of radio-wave imaging of low-signature and slow objects in the interests of creating advanced SAM complexes for engaging all types of offensive air weapons
- Development of a standard series of UAVs for various purposes, as well as a family of domestic internal-combustion engines, power supply systems, composite

radar-transparent materials, and standardized assemblies and elements of payload.¹²¹¹

There are other, more exotic, armament developments that, while deployed with the Ground Troops, may or may not be considered separate from them, as it depends on who is operating them. In July 2015 two new UAVs were discussed. The first is the Supercam 300M, described as a “flying-wing configuration, a multi-role tactical UAV capable of being equipped with various payloads depending on requirements, including video, thermal imagers, or cameras.”¹²¹² It is launched via a pneumatic catapult. The second is the Granad VA-1200, which is undergoing testing in Russia. It is capable of deploying small arms. The eight-rotor configuration was first shown at the Army Forum-2015 exhibition in June 2015. There are plans for a short-range armed variant for special subgroups and structures of the Defense Ministry.¹²¹³

Cyber

With regard to Chapter Seven, “Russia’s Digital Prominence,” the host of excellent mathematicians and algorithm writers in Russia continue to exhibit the development of digital capacities that will enable Russia to advance far in the cyber age. A recent article in *Military Thought* described Russia’s expectations regarding future war’s reliance on information technologies. Authors S. A. Chekinov and S. A. Bogdanov noted the following about the information-technological aspect of future war:

- Information warfare is the starting point of every action now called the new type of warfare in which broad use will be made of the mass media and computer networks (blogs, social sites, etc.)

¹²¹¹ Sergey Yegorovich Pankov, “Role of Military Technologies in Developing a Russian Federation Armed Forces Armament System,” *Federalnyy Spravochnik (Federal Reference Book)*, 26 June 2014.

¹²¹² *Interfax-AVN Online*, 23 July 2015.

¹²¹³ *Interfax-AVN Online*, 22 July 2015.

- New information techniques, operating in the nanosecond format, will be the decisive factor for success of military operations. These techniques are based on new technologies that may paralyze the computer systems that control troops and weapons and deprive the enemy of information transmission functions. As a result, computers will turn into a strategic weapon in future wars
- Future wars will be launched by electronic warfare forces, which will protect friendly forces, block foreign propaganda disinformation, and strike at enemy EW forces and assets. They will blend with strategic operations set off by the armed forces and an aerospace operations
- Long-term forecasts predict that strategic goals will not be achieved in future wars unless information superiority is assured over the enemy
- Russia must be on the lookout for special operations designed to “misinform and mislead the other side’s military and political leaders,” which will include large-scale measures of new-type wars, including actions to influence the behavior of the armed forces of the adversary to instigate internal tensions in society.¹²¹⁴

While these issues are well documented (see for example APT 28 in the chapter on cyber issues), there is less written about a Kremlin fear, the impact of the cyber age on the thought processes of its citizens. This is the information-psychological aspect of future war.

Russia’s leadership worries about the arrival of an indirect operation in the form of a “color revolution” in Moscow. The latter is a

¹²¹⁴ 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.

reference to the various revolutions that have taken place in the recent past and identified by a color (Rose revolution in Georgia, Orange revolution in Ukraine, etc.). Several sources, to include the military, write often on the topic. For example, in a February 2014 article in *Military Industrial Courier Online*, Professor Igor Sheremet, Vice President of the Academy of Military Sciences, touched on the country's information-psychological security. He composed a separate section on cyber threats entitled "New Reality." The article, which preceded events in Ukraine, presented a view of a changing Russia. He further notes that the "influence of the information sphere on the individual, group, and mass consciousness has grown by several orders of magnitude."¹²¹⁵ To him this means that the Internet is the principal way to influence the conscience of individuals, in which Putin's apparatus appears to see a direct threat. There are also a variety of nondirective methods for controlling groups and people. As a result,

A new reality has been created in which objects of the global technosphere and anthroposphere find themselves subjected to a whole spectrum of threats that did not exist earlier, the source of which is the total connectedness of the global information infrastructure. Each of its addresses has the physical possibility of information exchange with every other address.¹²¹⁶

Perhaps for this reason Putin is so intent on controlling not only the Internet, but TV as well, especially since the latter is the main way Russians get their news. In a later interview, Sheremet returns to the issue of cyber threats to critical infrastructure, noting that it is "not a lesser danger to our country than all the potential threats in the military sphere put together."¹²¹⁷

¹²¹⁵ Igor Sheremet, "Cyber Threats to Russia Grow," *Voyenno-Promyshlennyy Kuryer Online (Military Industrial Courier Online)*, 11 February 2014.

¹²¹⁶ Ibid.

¹²¹⁷ Igor Sheremet, Part II of "Cyber Threats to Russia Grow," *Voyenno-Promyshlennyy Kuryer Online (Military Industrial Courier Online)*, 19 February 2014.

What this means is that Russia's propaganda must be continuously strengthened internally, as the Kremlin must keep its citizens away from the influence of international or Western organizations offering new ways of thinking. Further, Russia's cyber experts must continue to search out weaknesses that can be exploited in other nation's digital defenses.

The Arctic

With regard to Chapter Eight, "Northern Exposure: Revealing Russia's Arctic Infrastructure Buildup," four Russian goals for the region were highlighted. They are to protect Russian national interests; protect the Northern Sea Route that runs over the top portion of the nation; protect the area's potential oil and gas reserves along with mineral supplies; and confront the threat of NATO moving closer to its borders. The Arctic and Atlantic are two of several focal points of Russia's naval strategy at the moment, but they appear to be the most important.

The Atlantic is important, since NATO operates almost exclusively there. Since Crimea and Sevastopol have been reunited with Russia, Russia has strengthened its Black Sea Fleet, and further strengthening it with Kaliper missiles. According to Admiral Alexander Vitko, Commander of the Black Sea Fleet, the fleet's area of responsibility includes not only the Black Sea, but also the Sea of Azov and the entire Mediterranean.¹²¹⁸ Black Sea presence enables movement to the Mediterranean, which is Russia's outlet to the Atlantic.¹²¹⁹

The Arctic is important for the opening of the Northern Sea Route and its unhindered access to the Atlantic and Pacific Oceans and the riches of the continental shelf. Several NATO countries border the Arctic and have territorial claims there as well, which can potentially produce additional strains between NATO and Russia in the near future.

¹²¹⁸ *Interfax* (in English), 23 July 2015.

¹²¹⁹ *Ibid.*

A *Moscow Times* noted that the 2015 Naval Doctrine envisions the Arctic as a key access point to enter the Atlantic and Pacific Oceans unimpeded by NATO.¹²²⁰ Also mentioned as new elements of the naval doctrine are shipbuilding, state management, and providing for sailor social issues.¹²²¹

It should be assumed that the strategy under development for the Arctic will have a logic all its own. A key component of this strategy could be termed the use of the United Nation's deterrent capability, that is, if Russia's claims to the area are verified they can deter other nations from such claims. Russia is releasing reams of information about the extension of its continental shelf in an attempt to ensure a favorable decision by the UN that will cede vast stretches of the tundra and its riches to the Kremlin. The Kremlin continues to search for the appropriate measurements and language to propose accurate findings to the UN so that the latter might rule that the Lomonosov Ridge is on Russian territory and should legally be declared under the jurisdiction of Russia.

The Arctic has been militarized by Russia, even though Foreign Minister Sergey Lavrov cautioned against that idea a few years ago (could this have been a reflexive control operation, thwarting the enemy with a friendly embrace?). Russia has subsequently prepared what some call a "fifth military district" or new theater of operations in the Arctic region. Such a development could have been the result of prescient forecasting, which noticed that the West was paying scant attention to developing a force to protect the area; and an estimate of the areas COF was underway.

After deciding where advantages were located, Russia began establishing military outposts on these northern territories. Overall, they have established a positive correlation of forces there in regard not only

¹²²⁰ Matthew Bodner, no title provided, *The Moscow Times Online* (in English), 27 July 2015.

¹²²¹ "Russian Federation..."

to forces and equipment on the ground but also through its extensive fleet of some 41 icebreakers, both nuclear- (6) and diesel-powered. Russia has plans to add to its atomic-powered icebreaker fleet. Three ships, the Arktika, Sibir, and Ural, are to enter service in 2017, 2019, and 2020, respectively, although exact dates for each were not specified.¹²²² Russia can initiate operations against threatening actions by other nations or even environmental organizations, if necessary, with the military force it has put together. The Northern Fleet has accrued, developed, and deployed a vast array of technology, equipment, and personnel in the Arctic, to include strategic submarines, marines, infantry brigades, radars, air defense systems, and the airborne, to deter or attack rivals and ensure the correlation of forces stays in Russia's favor. The territory, as is well known, is vast, with a coast-line thousands of miles long that must be protected. This, the Kremlin notes, requires an extensive force buildup.

Ukraine

With regard to Chapter Nine, "Russia and Ukraine," the story continues to unfold even as Russian military interest is deflected by its ongoing involvement in the fight over Syria. Ukraine is vastly different. Here Russian participation is camouflaged and not nearly as open. Events are supported by Russia, but the administration continues to deny any actual involvement on Ukrainian soil. Meanwhile, according to reports, in August the shelling from indirect fire continued near Mariupol and along the highways from Horlivka to Mariupol and from Debaltsevo to Artemivsk. In Crimea the Russians have continued to prepare a bridgehead from which they can attack or influence operations in or around Mariupol, Odessa, and even Transdnistria. A June 2015 report noted that 24,000 servicemen are in Crimea now and that the goal is to station 43,000 servicemen there by 2017. The same report noted that "it is highly probable that strategic nuclear weapon delivery vehicles" may also be deployed on the peninsula.¹²²³ A month later it was noted that aircraft include Su-34 bombers, Mi-8MTPR special-purpose helicopters,

¹²²² *Interfax-AVN Online*, 26 July 2015.

¹²²³ *Interfax* (in English), 8 June 2015.

Mi-28N attack helicopters, and Su-30M2 fighter jets.¹²²⁴ Black Sea Fleet Commander Admiral Alexander Vitko announced the same month that a new coast guard unit and missile brigade with anti-ship missile systems had been created there. Also now present are a logistics support brigade, missile defense and artillery regiments, a marine engineer regiment, and two air force regiments.¹²²⁵

In Kiev, President Petro Poroshenko has his own internal problems. A review of a constitutional amendment that would acknowledge the special status (a law passed in September 2014) for separatist southeastern Ukraine was met with a hail of criticism and rioting from Ukrainian nationalist groups, groups that the Kremlin can point to as proof that fascism is alive and well in Ukraine. These groups present new targets that Russia can exploit and use to defame the Poroshenko government. The ultranationalist Freedom Party and Right Sector paramilitary groups were behind the rioting. The amendment on decentralization, which would grant greater financial power (but not a veto over domestic and foreign policy decisions) to local governments below the level of a province, would fulfill a clause in the Minsk II ceasefire agreement that mandated constitutional reform based on decentralization. This was only a preliminary reading of the amendment, which will not be put to a vote until December 2015, and then only if the separatists and Russia attend to their agreements in the Minsk accord.

Epilogue: Putin, Strategy, and Geopolitical Quests

A May 2015 article at the Russian news website, *Svobodnaya Pressa*, using the breakout of categories in this book, should have made the US analytic community shudder, since it implied that at least two influential Russian thinkers were advocating a direct threat to the US homeland with nonnuclear deterrents. Instead, it was largely ignored. All three elements (strategy, future war, geopolitics) were tightly intertwined in the article. Andrey Ivanov wrote the article by incorporating interviews with two individuals, Aleksandr Perendzhiyev, from the

¹²²⁴ *Interfax* (in English), 3 July 2015.

¹²²⁵ *Interfax* (in English), 23 July 2015.

Association of Independent Military Political Experts, and Colonel General Leonid Ivashov, a member of the Academy of Geopolitical Problems.¹²²⁶

The article noted Russia should utilize deterrence and collective security strategies if it is to counter US moves in Europe. Here, strategy is tightly wound with geopolitics, which is a specialty of Ivashov. When advancing collective security the article advanced the idea of creating a joint troop grouping in Nicaragua with China and putting Russian troops in Venezuela and Brazil. More ominous was the suggestion of placing a task force off the coasts of the US, so that it would have American territory in its sights. That clearly implies a task force stationed in Cuba. The deterrent factor, it was noted, must be moved up to the border of the US. This “grand coalition” could include India as well. Russia should “organize a major diplomatic and information offensive” when creating this security alliance, which clearly ties strategy with geopolitics.¹²²⁷

With regard to future war, Perendzhiyev and Ivashov reminded readers that the 2014 military doctrine of Russia speaks for the first time about the nonnuclear deterrent factor, tying doctrine and strategy with weaponry in future war scenarios.¹²²⁸ The section on UAVs in Chapter Four of this work, which described a host of Russian advances in UAVs, should give pause to every US military planner. In 1962 it was possible to find Russian missiles in Cuba and, through the Cuban Missile Crises, get them off the island. If Russia creates a task force in Cuba with a nonnuclear deterrent such as armed UAVs, it will be incredibly hard to find them. They could be hidden in buildings or hangars, and this could strongly affect US responses to such potential actions. Size matters as does the ability to hide capabilities and use them when needed for surprise.

¹²²⁶ Andrey Ivanov, interviews with Aleksandr Perendzhiyev and Leonid Ivashov, “United States Transitioning to ‘Number One’ Combat Readiness. Any Provocation Would Give the United States the Opportunity to Attack Russia,” *Svobodnaya Pressa (Free Press)*, 7 May 2015.

¹²²⁷ Ibid.

¹²²⁸ Ibid.

Psychologically, there were repeated warnings from these men that Russia should not allow the US to provoke (the word was used seven or eight times) it into acting. The interviewees noted that if a provocation took place in Transdnistria and NATO member Romania was dragged into the conflict, then a NATO response would soon follow. Or, they added, what if a small clash took place on Latvia's border and exactly what happened there remained unknown to the public. The US would say Russia was responsible and the States must respond to defend a NATO ally.¹²²⁹

In Crimea Russia hid the identity of its troops, refusing to recognize they were on Ukrainian territory for weeks before admitting it. Now they are doing the same in eastern Ukraine demonstrating, unfortunately, that they cannot be trusted. If they can't be trusted, then what they say about provocations and other issues (MH17, etc.) has to be judged accordingly. Ivashov stated that "everything indicates that the US is preparing for a provocation." This absolutely makes no sense for a force that is tired and moving forward with a limited budget. No sane person would even consider initiating a conflict with a force exhausted from ten years of multiple deployments, especially against a power of Russia's status. This indicates that these men, and perhaps Russia's leadership, are both insecure and intimidated by the US, yet arrogant due to the restoration of Russian military power. They are causing real headaches for themselves and the rest of the world with their horrific logic.

Other than that, all is fine.

Thus, as this work draws to a close, it is apparent that if Putin's presidency is not affected by outside events (a resurgent threat in the south of Russia from ISIS, Taliban, Chechen fighters, or some combination of them), he probably will continue his quest to take back the eastern section of Ukraine and perhaps other territories after he

¹²²⁹ Ibid.

finishes operations in Syria. He has established a bridgehead in Crimea and is building up a military arsenal that can enable his access to Arctic oil and help establish an ice-free Northern Sea Route. He is working to restore specific segments of Russia's old empire, it appears, even though he doesn't need land, and wants to regain the status of a respected world player. The strategy he employs will be difficult to predict or uncover, and there are sure to be surprises along the way. The worst surprise would seem to be attacks along multiple axes or vectors (simultaneous actions in the Baltic, Ukraine, and Transdnier, for example). Russian military theorists have spoken on occasion of the fact that simultaneous attacks are becoming a norm of sorts in contemporary times, so the use of such a concept is not out of the question.

The use of indirect, asymmetric, and nonmilitary vectors will be considered and implemented along with an increasingly active propaganda offensive. Ivashov's thoughts indicate that the West must be on the lookout for Russian provocations. How can the West restore a stable Europe? When will Putin's vindictive well run dry? The best one can hope for, it seems, is that as Putin is faced with multiple factors (sanctions, financial and legal constraints, terrorists, Middle East groups, etc.) he might want Europe back as an ally again.

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RUSSIA

MILITARY STRATEGY

IMPACTING 21ST CENTURY REFORM AND GEOPOLITICS



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