

The New Military Revolution and International Security

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Abstract: The fourth wave science and technology revolution is quickly ushering in a worldwide military revolution. The major powers such as the United States, Russia and China are all striving to catch up with the wave by accelerating their own research on new military technology and the deployment of new military equipment. This presents significant changes to the international security system: the existing disarmament and arms control system is on the brink of collapse, strategic competition among the big powers has intensified, and the risk of global turbulence is on the rise. The future of international security and its mechanism depends both on the method and direction of the technology revolution, and on the ability of the big powers to put aside their differences and avoid conflict in the major arenas of competition. In this process, China should seek to play a bigger and more constructive role. This would not only be conducive to world peace and development, but is also the only way for China to secure a seat in the future international system.

Keywords: new military revolution, international security, international strategy, arms race, disarmament and arms control

In recent years, with the rapid pace of the military revolution, the major powers have made great efforts to renew their military technology and equipment, which appears to have led to a new arms race. This casts a great impact on the international security system. As a result, the current arms

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control arrangement is set for fast collapse; competition between the big powers is intensifying; regional conflicts are occurring with greater frequency; and the risk of world turbulence is growing. What is our future? This depends on how far technology can carry us and whether the great powers can cooperate effectively. China is an important player. It should play a bigger role and should shoulder more responsibilities as its position and impact advance. China should actively involve herself in the building, renewal and transformation of international security cooperation rules and mechanisms with its new security concepts, with a view to bettering international security and securing world peace.

Warship on the New Military Revolution

The current new military revolution was brought about by the fourth science and technology revolution, which presents itself principally in the fields of artificial intelligence, clean energy, quantum information, virtual reality, bio-technology, and so on. These are also the major arenas of the new military revolution. The traditional research fields have also made some progress, and as such they should also be seen as part of the new military revolution. In general, the great powers are the major actors, led by the United States and followed by Russia, China and others. This new military revolution is an omnibus reformation that may set the future architecture by leaps and bounds. As breakthroughs are anticipated in many fields, future war and international security patterns may be reshaped accordingly. Therefore, competition among the great powers in the following areas is worthy of careful observation.

I. Nuclear Weapons

After the end of the Cold War, both the United States and Russia shrank their nuclear arsenals for a time, in particular through the three strategic arms reduction treaties. However, as the rivalry between the great powers intensified, so competition between nuclear forces revived. Notably, this new round of competition focused principally on quality, since the number of nuclear weapons one can keep is now fixed.

After Trump entered the White House, the US nuclear policy became more aggressive, as indicated by the US 2018 Nuclear Posture Review,

which called for the modernization of nuclear weapons, nuclear facilities, and the delivery systems. Special attention was given to the development of new small tactical nuclear weapons. The review lowered the threshold for using nuclear weapons, by allowing the US to employ nuclear weapons in response to significant non-nuclear strategic attacks.¹ Over the next 30 years, the United States will renew its Strategic Nuclear Triad by deploying Columbia-class Strategic Submarines (SSBN), new-generation B-21 Raiders, new Intercontinental Ballistic Missiles (ICBM), and new Air-launched Cruise Missiles (ALCM).

To maintain the strategic balance with the United States, Russia is also renewing its nuclear arsenal, although its fiscal budget is relatively tight. After being re-elected, Russian President Putin expressed that the priorities in Russian military construction were strategic shields against nuclear attacks, and the upgrade of the air and space forces.² In Russia's 2018-2025 State Arms Procurement Program, strategic nuclear forces form the lion's share.³ According to estimates of *The Economist* magazine, the work involved to renew Russia's nuclear forces is already half complete.⁴ For the army, the new land-based RS-24 Yars ICBMs are undergoing production of a high quality. The RS-28 Sarmat ICBM accomplished its first test launch at the end of 2017. The RS-26 Rubezh ICBM has completed five test launches. For the air force, the first Tu-160M2 Blackjack supersonic strategic bomber rolled out of the final assembly workshop of the Kazan Aviation Enterprise at the end of 2017. A test flight was successfully conducted in January 2018, and it is planned to be produced and deployed in 2023. For the navy, three new 955B Borey-B strategic nuclear submarines have been delivered, and five are under

¹ US Department of Defense, "Nuclear Posture Review," February 2018, accessed May 20, 2018, <https://media.defense.gov/2018/Feb/02/2001872877/-1/-1/1/EXECUTIVE-SUMMARY.PDF>.

² «Путин: Россия продолжит укреплять свои Вооруженные силы», *TACC*, 23 февраля, 2017, accessed May 22, 2018, <http://tass.ru/armiya-i-opk/4048082>.

³ «Минобороны рассказало о приоритетах программы вооружений», *Военное обозрение*, 31 октября 2017, accessed May 22, 2018, <https://topwar.ru/128546-minoborony-rasskazalo-o-prioritetah-programmy-vooruzheniy.html>.

⁴ "Why Nuclear Stability Is Under Threat—Not So MAD," *Economist Special Report*, January 27, 2018, 12.

construction.¹ The brand new R-30 Bulava sea-based ICBMs are in the advanced stages of improvement.

Following the lead of the US and Russia, nuclear powers such as China, Pakistan, India, etc., have also made great efforts to modernize their nuclear arsenals.²

II. The Anti-ballistic Missile System

The United States is clearly the pioneer of the anti-ballistic missile system (ABM). After many years' efforts, the United States now has the best anti-missile system in the world. In recent times, the United States has tried to deploy its ABM overseas, in order to break the current strategic balance with Russia. In 2004, the US deployed the land-based ABM in Alaska. In 2010, the US made the decision to deploy the ABM in Europe in stages. In 2016, it set up an ABM system in Romania, and it has started to build another in Poland, which is scheduled to be finished in 2018. In 2012, the United States decided to deploy an ABM in Asia. This was realized in 2017 when the THAAD system was deployed in South Korea amid the crisis on the Korean Peninsula. *The Economist* assesses that the current US ABM is still unable to defend a large-scale ICBM attack, but it is at the advanced stages of substantial improvement, as shown by the successful test to intercept ICBM in July 2017.

The ABM capabilities of other countries are inferior to that of the US, but efforts have been made to narrow the gap. Russia continues to rely heavily on the A-135 system deployed around Moscow during the time of the USSR, but the new third generation ABM A-235 is well under development. The A-235 is composed of three layers: 51T6 long-range intercepting missiles, 58R6 middle-range intercepting missiles and 53T6M short-range missiles. The ceiling is 800 to 1000 km, the radius 1000-1500 km, and the speed over 20 Mach. The 53T6M, the key component of the system, has been fired successfully several times. Another characteristic of

¹ «Источник: Россия построит еще шесть атомных стратегических подлодок класса "Борей-А"», *TASS*, 21 мая 2018, accessed May 23, 2018, <http://tass.ru/armiya-i-opk/5218417>

² "Why Nuclear Stability Is Under Threat—Not So MAD," *Economist Special Report*, January 27, 2018.

the Russian ABM is the integration of ABM with the air defense system, in order to form an integrated air-space defense system. To realize this, the S-400 air defense system is being deployed with full steam, and the S-500 is under development with heavy input.

III. Hypersonic Weapons

Hypersonic weapons are also an arena for competition among the great powers. These weapons can perform like the space-based kinetic energy weapon, but at lower cost. Potentially, these will be able to break the strategic balance by bypassing easily the ABM system. The United States is once again the pioneer of the concept of hypersonic weapon. As early as the 1960s, the US tested the scramjet, speeding up to 7.3 Mach. In 2002, the United States sped up hypersonic weapon development as stipulated in the Prompt Global Strike (PGS) plan, which set out to strike any target on the globe with high precision within one hour. The related projects currently under development include the High Speed Strike Weapon (HSSW) of the air force by Lockheed Martin, the Hypersonic Air-breathing Weapon Concept (HAWC) and the Tactical Boost Glide System (TBG) by the air force and the Defense Advanced Research Projects Agency, the Advanced Hypersonic Weapon (AHW) by the army, and so on. Many achievements have been made and experiences accumulated. According to the US *Inside Defense* news service, the US Department of Defense (DoD) plans to deploy hypersonic weapons initially to the European Command and the Pacific Command in the 2018-2022 fiscal year, as a first step towards achieving the PGS plan.¹

Russia has wasted no time on this question, as demonstrated in its *2018-2025 State Arms Procurement Program*. Progress has been made in many areas. According to conformation by the Russian Defense Ministry in July 2018, the 20 Mach Avangard hypersonic missiles are under batch process, and the 10 Mach Kinzhal hypersonic missiles have been delivered

¹ Jason Sherman, "DOD Promises 'Certain' Conventional Prompt Global Strike Capabilities for EUCOM, PACOM," *Inside Defense*, February 22, 2017, accessed May 29, 2018, <https://insidedefense.com/daily-news/dod-promises-certain-conventional-prompt-global-strike-capabilities-eucom-pacom>.

to the armed forces and are under operation.¹ China has also joined the game. In January 2014, China's Ministry of Defense confirmed that hypersonic vehicles were under development.² Based on the report by the US journal *The National Interests* at the end of 2017, China's DF-ZF had successfully completed seven test launches, with a speed of 5 to 10 Mach.³

IV. Cyber War

The United States began the study of cyber warfare very early. In 1993, John Arquilla and David Ronfeldt of RAND Corporation introduced the concept and basic principles of cyberwar in their paper "Cyberwar Is Coming."⁴ In 2009, the United States set up its Cyber Command (USCYBERCOM), and clarified its tasks and force structure in two documents: Strategy for Operating in Cyberspace and DoD Cyber Strategy. In October 2016, the DoD asserted that 133 units under USCYBERCOM had begun to operate, and that the total number of soldiers would be enlarged to 6, 200 by 2018.⁵ In August 2017, President Trump declared that USCYBERCOM would be elevated to the 10th Command, on a par with all other major commands, such as the Central Command.⁶ Starting in 2012, NATO has conducted an annual Locked Shields cyberwar exercise with the largest scale and most advanced technologies in the world.

¹ «Минобороны впервые опубликовало видео с новейшим оружием», *РИА Новости*, 17 июля 2018, accessed July 26, 2018, <https://ria.ru/arms/20180719/1524954261.html>.

² "Guofangbu huiying 'zhongguo shishe gaochaoyinsu daodan' [The Ministry of Defense of China responds on China's tests of hypersonic missiles]," *Southern Metropolis Daily*, January 16, 2014, A23.

³ Dave Majumdar, "Nuclear War: Could China's Mach 10 Hypersonic Weapons Unleash the Unthinkable?," *National Interest*, November 16, 2017, accessed May 29, 2018, <http://nationalinterest.org/blog/the-buzz/nuclear-war-could-chinas-mach-10-hypersonic-weapons-unleash-23228>.

⁴ John Arquilla and David Ronfeldt, "Cyberwar Is Coming!," *Comparative Strategy*, Vol. 12, No. 2 (Spring 1993): 141-165.

⁵ US Department of Defense, "All Cyber Mission Force Teams Achieve Initial Operating Capability," October 24, 2016, accessed June 2, 2018, <https://www.defense.gov/News/Article/Article/984663/all-cyber-mission-force-teams-achieve-initial-operating-capability>.

⁶ The White House, "Statement by President Donald J. Trump on the Elevation of Cyber Command," August 18, 2017, accessed June 2, 2018, <https://www.whitehouse.gov/briefings-statements/statement-president-donald-j-trump-elevation-cyber-command/>.

Russia released its Concept of Russia's Cyber Security Strategy as early as 2000. In 2013, Russia again released the document: Basic Principles for State Policy of the Russian Federation in the Field of International Information Security to 2020. In February 2017, the Russian Defense Minister Sergei Shoigu declared that Russia had already set up its force for cyber warfare.¹ According to the business newspaper *Kommersant*, the Russian cyber force has 1,000 soldiers with an annual budget of US \$300 million. Major weapons include Botnet, Jammers to interfere with communications, logic bombs, etc.²

Other countries have also accelerated the building of their cyber forces. Israel has more than 10 cyber fighting units. Some US officials revealed that famous computer viruses such as Stuxnet and Flame were jointly developed by the United States and Israel.³

In line with the building of cyber forces, cyber warfare is no longer a concept, but a reality. In 1991, US military forces used computer viruses to attack and paralyze Iraq's air defense system during the Gulf War. This is believed to be the earliest practice of software weapons in traditional warfare. Similar methods were used in the Kosovo War and the Iraq War. Russia also conducted a network attack in the 2008 Russia-Georgia conflict to assist its military operations.

As recent development shows, cyber warfare is no longer an auxiliary of traditional warfare, but it has gained independent status, as the United States heavily damaged Iran's uranium enrichment system by using Stuxnet and Flame viruses. In 2016, Russia became a common target as many Western countries such as the United States, UK, Germany, France, Holland, etc. accused it of attempting to influence their elections through

¹ Иван Петров, «Шойгу объявил о создании войск информационных операций», *Российская газета*, 22 февраля 2017, accessed June 2, 2018, <https://rg.ru/2017/02/22/shojgu-obiavil-o-sozdanii-vojsk-informacionnyh-operacij.html>.

² Мария Коломыченко, «В интернет ввели кибервойска-Аналитики оценили количество хакеров на госслужбе», *Коммерсантъ*, №2, 10 января 2017, стр. 1.

³ Ellen Nakashima, Greg Miller and Julie Tate, "U.S., Israel Developed Flame Computer Virus to Slow Iranian Nuclear Efforts, Officials Say," *Washington Post*, June 19, 2012, accessed June 2, 2018, https://www.washingtonpost.com/world/national-security/us-israel-developed-computer-virus-to-slow-iranian-nuclear-efforts-officials-say/2012/06/19/gJQA6xBPoV_story.html?noredirect=on&utm_term=.9457ffe83567.

hacker attacks.

V. Artificial Intelligence

In recent years, significant progress has been made in artificial intelligence (AI) including big data, cloud computing and deep learning. The major powers are all trying to outwit each other and find ways to apply AI in the arena of the military. In 2007, the US Defense Advanced Research Projects Agency (DARPA) enacted the Deep Green project, attempting to launch a large number of research projects on building an AI command and control system. In 2014, the United States formulated the Third Offset Strategy, which viewed new technologies such as autonomous weapons and advanced missiles as the key to offsetting future threats.¹ Specifically, the Strategy called for the accelerated use of AI technologies in major battle weapon systems and commanding networks as a means to support military action. Now the unmanned aerial vehicles (UAV) of the US Air Force outnumber conventional fighter planes. With AI technology, some UAV can find and destroy targets by themselves.² Robert Work, the then deputy secretary of defense and the father of the Third Offset Strategy, formed the Algorithmic Warfare Cross-Functional Team (AWCFT) in order to study how to use AI technologies to uncover terrorists and locate DPRK's mobile missile launchers.³

Other countries are also trying to catch up with the US. In July 2017, China released its AI development plan, calling it revolutionary technology for the future economy and military. The goal is to become one of the world's best by 2030, when AI technologies will be fully, broadly and effectively used in both civil and military arenas. AI technologies should be allowed to transfer smoothly between the civil and the military. They should provide forceful support in commanding decision-making, war

¹ US Department of Defense, "Secretary of Defense Speech—Reagan National Defense Forum Keynote," November 15, 2014, accessed June 2, 2018, <https://www.defense.gov/News/Speeches/Speech-View/Article/606635/>.

² Matthew Rosenberg and John Markoff, "At Heart of U.S. Strategy, Weapons That Can Think," *New York Times*, October 26, 2016, A1.

³ "Special Report: The Future of War," *Economist*, January 27 - February 2, 2018, 14.

deduction and weapons production.¹ Russia believes that AI could be a shortcut in its military development. Putin once said that AI represents the future, and that he who becomes the leader in this area will be the master of the world.² The Russia-Georgia war shows that Russia has fallen behind in unmanned weapons. Lessons have been learned, and now Russia is making great efforts to develop robot soldiers, AI missiles and an AI commanding system. Some of the robot soldiers have already been used on the battlefields of Syria.³

The Impact of Great Power Competition

Competition among the big powers in the new military revolution has many impacts on global security.

I. The Disarmament Systems Facing Critical Challenges

The rapid development of new technologies, weapons and battle concepts render obsolete many disarmament agreements signed during the Cold War. Some have been abandoned, some will soon be invalid, and some exist in name only. This throws a cloud of gloom over future global security.

Firstly, the Anti-ballistic Missile Treaty is not in good shape. After its unilateral withdrawal from the treaty in 2001, the United States hastened to deploy ABM on its mainland, in Europe and the Asia-Pacific region. In May 2017, the United States successfully intercepted an ICBM by using a ground-based interceptor (GBI). This led to a quick deployment of this interceptor. By the end of 2017, 44 GBIs had been deployed. This number will increase to over 100 in the near future. This fast breaks the global

¹ Government of PRC, “Guowuyuan guanyu yinfa xinyidai rengong zhineng fazhan guihua de tongzhi [State Council’s notification on printing and distributing the development planning of new AI],” July 20, 2017, accessed June 10, 2018, http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm.

² «Путин: лидер в сфере искусственного интеллекта станет властелином мира», *РИА Новости*, 1 ноября 2017, <https://ria.ru/technology/20170901/1501566046.html>, accessed June 10, 2018, <https://ria.ru/technology/20170901/1501566046.html>.

³ “Russia Mulls Sending Uran-9 Combat Robots to Syria,” *Sputnik News*, January 9, 2017, accessed June 10, 2018, <https://sputniknews.com/russia/201701091049401239-russia-syria-robots/>.

strategic balance, as the GBIs greatly damage the nuclear deterrence ability of the potential rivals, and their ability to counterattack in particular. Secondly, the future of the Strategic Arms Reduction Treaty is blurred. The third Strategic Arms Reduction Treaty (START III) will expire in 2021. In theory it can be extended by another five years, but this seems unlikely as Trump gave the cold shoulder to Putin when this was mentioned in their first hotline dialogue.¹ The US 2018 Nuclear Posture Review states that the United States needs to work out ways to extend the service life of the nuclear warheads and develop new ones, while respecting the general tasks of nuclear disarmament.² Both the US and Russia have blamed each other for violating the treaty due to divergent political opinions and a lack of military communication channels, as overall relations between the two have deteriorated. In the US-Russian summit meeting held on July 16, 2018, Putin gave Trump a to-do list for the maintenance of world strategic stability, but received no substantial response. Thirdly, the Intermediate-Range Nuclear Forces Treaty (INF) has a mere nominal existence, and faces the risk of abandonment. Over the past few years, the two countries have accused each other of breaking the commitment. The US blamed Russia for developing the SSC-8 land-based cruise missiles, for making 3M-54 cruise missiles that are capable of being launched from the ground, and for deploying Iskander (NATO code SS-X-26) missiles, which can easily be transformed into intermediate-range missiles, around Kaliningrad.³ The Russians, in turn, accused the US of refitting its target missiles into intermediate-range missiles, said that the UAV, like the MQ-9 Reaper, should be considered as a land-based cruise missile, and complained that the Airborne Early-warning Ground Integrated System

¹Jonathan Landay and David Rohde, “Exclusive: In Call with Putin, Trump Denounced Obama-Era Nuclear Arms Treaty—Sources,” Reuters, February 10, 2017, accessed June 10, 2018, <https://www.reuters.com/article/us-usa-trump-putin-idUSKBN15O2A5>.

²US Department of Defense, “Nuclear Posture Review,” February 2018, accessed May 20, 2018, <https://media.defense.gov/2018/Feb/02/2001872877/-1/-1/1/EXECUTIVE-SUMMARY.PDF>.

³Zhao Yuming, “Zhongdao tiaoyue sanshi nian: Mei E douxiang feile ta [30 years of INF: Do US and Russia want to abolish it?],” *Shijie Zhishi* [World affairs], No. 6, 2018, 31.

(AEGIS) in Romania is able to launch cruise missiles from ground.¹ Apart from these two countries, many other countries that possess intermediate-range missiles and new technologies in this area continue to emerge. These constantly erode the INF treaty. On October 20, 2018, Trump announced that the United States would withdraw from the INF. On December 4, the US Secretary of State Mike Pompeo said that the US would suspend its obligations to the 1987 Treaty on Intermediate-range Nuclear Force 60 days hence unless Russia took steps to return to compliance. After the expiration of this 60-day deadline, the US would begin the six-month process of formally withdrawing from the INF treaty. The tearing-up of this disarmament agreement signed by the United States and Russia in 1987 is undoubtedly a heavy blow to the current world disarmament and arms control system. Finally, the Nuclear Non-Proliferation Treaty has been challenged time and again. India, Pakistan, Israel and North Korea have already become de facto nuclear powers. If nuclear weapons end up in the hands of an irresponsible country, disaster potentially ensues. It would be even worse if nuclear materials or weapons fall into the hands of the terrorists.

II. The Return of The Arms Race

After the end of the Cold War, many great powers cut their military budgets and used the money they saved for development. In recent years, however, military budgets have gone up again as the big power competition intensifies and the new military revolution emerges. According to estimates by the Stockholm International Peace Research Institute (SIPRI), global military expenditure has reached US\$1.739 trillion, a 1.1% growth on the figure from the previous year. This is a notable increase, and the total is the highest since the end of the Cold War.² Based on predictions by the Jane's Information Group, world military expenditure would come to US\$1.67 trillion in 2018, a 3.3 percent increase compared to that of

¹ Ibid.

² Nan Tian, Aude Fleurant, Alexandra Kuimova, Pieter D. Wezeman and Siemon T. Wezeman, "Trends in World Military Expenditure, 2017," SIPRI, May 2018, accessed May 20, 2018, https://sipri.org/sites/default/files/2018-04/sipri_fs_1805_milex_2017.pdf.

2017.¹ Both institutions believe that world military expenditure is increasing rapidly and will surely reach its peak since the Cold War, even though the figures that they present are slightly different.

The United States is the driving force behind this undeclared arms race. Trump harps to the same tune as Reagan, who believed that peace could only be gained through strength. In the 2018 fiscal year, the US defense budget increased to US\$692 billion, the highest in recent years.² This figure is growing to US\$717 billion in 2019.³ China also appears to be speeding up its military modernization. According to estimates by the SIPRI, China's military expenditure reached US\$228 billion in 2017, a 110 percent increase on the figure from a decade ago.⁴ Saudi Arabia, Russia and India, which rank the third, fourth and fifth, have wasted no time. Their military budgets have grown by 34 percent, 36 percent and 45 percent respectively, compared with the figure of a decade ago.⁵ It is worth noting that this round of arms race is clearly asymmetric. With a relatively looser budget, the United States spends money in an all-round way. The whole strategic deterrence system is being refitted. Other countries have to spend their money selectively. Russia stresses the development of its nuclear capability in order to maintain the strategic balance with the US. At the same time, money has been spent in the high-tech areas such as hypersonic weapons. This was clearly demonstrated by Putin in his annual address to

¹ Zachary Keck, "Report: In 2018, Global Defense Spending Will Reach Highest Level Since Cold War," *National Interest*, December 23, 2017, accessed May 25, 2018, <http://nationalinterest.org/blog/the-buzz/report-2018-global-defense-spending-will-reach-highest-level-23763>.

² The White House, "President Donald J. Trump Will Make the American Military Great Again," December 12, 2017, accessed June 29, 2018, <https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-will-make-american-military-great/>.

³ US Department of Defense, "\$717 Billion Budget Critical to Rebuilding, Restoring Readiness, Pentagon Officials Say," August 1, 2018, accessed November 30, 2018, <https://dod.defense.gov/News/Article/Article/1591131/717-billion-budget-critical-to-rebuilding-restoring-readiness-pentagon-official/>.

⁴ Nan Tian, Aude Fleurant, Alexandra Kuimova, Pieter D. Wezeman and Siemon T. Wezeman, "Trends in World Military Expenditure, 2017."

⁵ *Ibid.*

the Russian Federal Assembly in March 2018.¹

Some Western scholars believe that China is also using its military budget selectively, with an emphasis on the new hypersonic, anti-satellite, electromagnetic pulse and network weapons in order to achieve asymmetric superiority against the United States.²

III. Anti-terrorism

With the fall of the ISIL, the global anti-terrorism effort seems to have entered into a diapause. The great powers changed their cognitions on terrorism and came back to strategic competition. The latest document from the National Security Strategy of the United States of America points out that “The National Defense Strategy outlines a world where great power competition, not terrorism, is the driving factor for the Pentagon.” This document calls China and Russia revisionist powers.³ Both the latest Russian National Security Strategy and Military Doctrine made pungent comments about the United States and NATO, stressing that the competition between countries has become severe, and that military force is still the major factor in international relations.⁴

The new military revolution is one of the major causes of this strategic resurgence. Both the United States and Russia use Syria as a testing ground for their newest military equipment and this brings about the potential for conflict between them. In early 2018, the two countries found themselves close to direct conflict for the first time since the Cuba missile crisis, as the US military dealt a heavy blow to the Russian mercenary armies. Countries such as the United States and Russia are obsessed with renewing and enriching their arsenals of nuclear and anti-missile weapons, and this puts

¹ Послание Президента Федеральному Собранию, 1 марта 2018, accessed June 1, 2018, <http://kremlin.ru/events/president/news/56957>.

² Larry M. Wortzel, “Is America Prepared to Battle China in an Asymmetric War?”, *National Interest*, November 18, 2017, accessed June 1, 2018, <http://nationalinterest.org/feature/america-prepared-battle-china-asymmetric-war-23260?page=show>.

³ The White House, “National Security Strategy of the United States of America,” December 2017, accessed June 1, 2018, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905-2.pdf>.

⁴ Указ Президента Российской Федерации от 31 декабря 2015 года N 683 "О Стратегии национальной безопасности Российской Федерации", 31 декабря 2015, accessed June 3, 2018, <http://kremlin.ru/acts/news/51129>.

the global strategic balance in great danger. The United States is the champion of this race. It is no longer satisfied with its huge nuclear weapon arsenal, and is attempting to enlarge it to include hypersonic, anti-missile, anti-satellite, and cyber weapons, with the hope of knocking out the enemy's major industrial centers and bases for strategic weapons, in particular retaliating weapons, and quickly winning the war.¹ According to some analysts, the coupling of hypersonic weapons with anti-missile forces could potentially sabotage strategic stability severely.²

IV. Hot Spots and Hybrid Warfare

As new military science and technology, as well as new military theories, make it possible for big powers to compete with proxy wars, network wars, cyber wars, intelligent wars, public opinion wars, trade wars, sanction wars, and so on, we may start to see more “hybrid warfare” between nations. This has blurred the definition of war and made the mode of war more intertwined. The concept of hybrid war was clearly outlined in the National Military Strategy released by the US Department of Defense in 2015. According to this document by the Pentagon, in future wars, the enemy military is likely to act as a non-state actor in order to have the initiative in hand by confusing the counterpart.³ This is echoed by Valery Gerasimov, Chief of the General Staff of the Armed Forces of the Russian Federation, who has successfully launched hybrid wars several times over recent years. He stated that the rules of war have changed. It has now become more possible for a country to reach its political and strategic goals through non-military means. Use of these means plus covert military action

¹ Luo Xi, “Meiguo zhanlue weishe tixi de tiaozheng yu zhongmei zhanlue wending [The US adjustments on its strategic deterrence system and the China-US strategic stability],” *Guoji Guanxi Yanjiu* [Journal of international relations], No. 6 (2017): 33.

² “The New Battlegrounds,” *Economist - Special Report: The Future of War*, January 27 - February 2, 2018, 4.

³ US Department of Defense, “National Military Strategy,” July 1, 2015, accessed July 20, 2018, http://www.jcs.mil/Portals/36/Documents/Publications/National_Military_Strategy_2015.pdf.

yields results that cannot be gained through traditional military means.¹ In fact, hybrid war is not something new, but can be traced back to the Trojan Horse. The difference is that modern science and technology have shortened wars but made them heavier in intensity.

Hybrid war considerably lowers the threshold of big power competition, as demonstrated in Ukraine, Syria and Afghanistan. According to Russian military expert Konstantin Sivkov, Russia and the West are already mired in a deeply competitive hybrid war, as the West fully understands that it would be impossible to invade Russia through traditional military action.² Gerasimov expounds even more systematically Russia's cognitions of hybrid war, and how to counter it.³ As for the US, including hybrid war in its national military strategy is a direct result of Russia already having done so in Crimea in 2014, and later in the east of Ukraine. The US must adjust its strategy to deal with this new and practical threat so that it is prepared for its potential eventuality.

Although everybody doubtlessly has their reasons to engage in hybrid war, it no doubt increases the potential for accidental conflicts between the traditional forces of the big powers. Some analysts worry that in an extreme case of hybrid war, the command and control system of nuclear weapons may be attacked, or communication satellites may be blind-jammed by laser weapons. In such a case, the country under attack will be forced to make a hard and quick decision: either give up their nuclear arsenal, or put it to immediate use.⁴ Worse still, uncovering the identity of the attackers could prove difficult, and as such it would be challenging to

¹ Герасимов Валерий., «Ценность науки в предвидении: Новые вызовы требуют переосмыслить формы и способы ведения боевых действий». *Военно-промышленный курьер*, 26 февраля 2013, accessed July 1, 2018, <https://vpk-news.ru/articles/14632>.

² Анатолий Молчанов, Россия ответит ядерным ударом на вторжение НАТО, *Геополитика*, 27 октября 2017, accessed July 10, 2018, <http://geo-politica.info/rossiya-otvetit-yadernym-udarom-na-vtorzhenie-nato.html>.

³ Ирина Нагорных, «Цветным революциям» ответят по законам гибридных войн, Военные теоретики готовы разработать концепцию «мягкойсилы», *Коммерсантъ*, 1 марта 2016, стр. 3

⁴ «The Next War», *Economist*, January 27 - February 2, 2018, 9.

react.¹ This is a scenario that no one wants to see.

What Lies Ahead?

The future of the international security system is likely to be shaped by the following factors:

I. The Pace and Scale of Technology Development

The new military revolution is another quantum leap after the birth of nuclear weapons, and brings with it many unprecedented possibilities. First, the country that makes decisive technological breakthroughs will secure its position as superior in the future world security system. Other countries would find it very hard to narrow the gap with traditional weapons, no matter how large their number, through strategic or tactical action. Secondly, the big powers may have more say in military decision-making, or possess military forces of their own. This is because the development of new technologies requires huge and consistent inputs. For example, the network of big AI companies has monopolized the right of speech in AI, as many of the research achievements have been made by them. Both the United States and China have actively invited the private sector to join the government in top military technology research. Finally, the spread of technology makes it possible for more people to possess destructive powers. The lowering of the nuclear threshold allures many countries to attempt to generate nuclear weapons of their own, and the risk of non-state terrorist groups developing nuclear weapons increases accordingly.

II. Fight or Cooperate?

The major challenge to the global security system is the strategic competition between the great powers. On the one hand, great powers still constitute the top count in the international system through virtue of their size, despite the fact that the world is becoming more multivariate. On the other, competition among the great powers is likely to ignite conflicts at the edges of their sphere of influence, as shown by the Syrian war and the war in eastern Ukraine. As such, the future of the international security order

¹ “Special Report: The Future of War,” *Economist*, January 27- February 2, 2018, 14.

will depend to a large degree on how the big powers see one another. In the realm of traditional security, the world needs big powers to quench regional conflicts and to set up and manage arms control system. Similarly, in the realm of new security, the big powers are also needed to establish new rules and norms.

Given that arms control agreements could be reached even during the most severe time of the Cold War, this is in fact achievable. The great powers should look at one another's strategic intents objectively and rationally. They should respect each other's interests and concerns. Contradictions and disputes should be settled through dialogue instead of force. Eventually, we should build up a new great power relationship characterized by non-confrontation, mutual respect, cooperation and mutual benefit.

III. Disarmament and Arms Control

Current arms control systems are in very bad shape, and many security vacuums exist in the new frontiers such as network and space. Many people worry about the increasingly serious competition between the great powers in the arena of new technology. Stephen Hawking, the UK theoretical physicist, once said, "AI will be either the best or worst thing for humanity."¹ Elon Musk, the famed technology entrepreneur, investor and engineer, worries that AI could lead to a Third World War.² Peter Singer, professor of bioethics at Princeton University, warns that the competition in AI may trigger a dangerous arms race if it is not kept within limits through effective rules and regulations.³

The building of an international security system is a shared responsibility. The major powers should join their efforts to block nuclear proliferation. Nuclear materials should be tightly controlled so that they do not fall into the hands of terrorists, and no new nuclear country should be

¹"Stephen Hawking: AI Will Be 'either Best or Worst Thing' for Humanity," *Guardian*, October 19, 2016, accessed June 15, 2018, <https://www.theguardian.com/science/2016/oct/19/stephen-hawking-ai-best-or-worst-thing-for-humanity-cambridge>.

²"Elon Musk Says AI Could Lead to Third World War," *Guardian*, September 4, 2017, accessed June 15, 2018, <https://www.theguardian.com/technology/2017/sep/04/elon-musk-ai-third-world-war-vladimir-putin>.

³"Special Report: The Future of War," 15.

allowed to emerge. There should be some restrictions on the updating of existing nuclear weapons by the major powers, not only quantitatively, but also qualitatively. Recently, the motion to place autonomous weapons under control was put on the table of the UN arms control institution, and this gained some support from certain countries. However, the great powers appear to have not been very enthusiastic about it. Some analysts believe that it will be hard to achieve any substantial breakthrough in the near future, and that setting some unbinding international norms would be more practical.¹ Similar problems also exist in other areas of new technologies.

We would do well to remember what E. H. Carr told us in his book *The Twenty Years' Crisis 1919-1939*. At that time, the Washington Naval Agreement and the Kellogg-Briand Pact had both been signed, but both of these were overly-general and lacked binding. Because of this, they failed to prevent the arms race, leading eventually to the outbreak of the World War II. In order to guarantee a stable international security system, future arms control agreements, both on traditional and new weaponries, should be clear and decisive, with powerful binding forces.

IV. Preventing the Extension of Regional Conflicts

Regional conflicts are now the major arenas for big power games. This new normality may lead to direct rivalry between them. In Syria, local forces were supported by Russia and the United States respectively. In some cases, Russian and American soldiers or mercenaries came into direct confrontation with one another in the military clashes. The US military action in February 2018 killed several hundred Russian mercenaries at the least.² As such, US-Russian relations are currently facing great risks. Things could turn out to be even worse than during the Cold War, given that many of the rules and communication channels set up at that time are

¹ Liu Yangyue, "Quanqiu anquan zhili shiyuxia de zizhu wuqi junbei kongzhi [The control of autonomous weapon under the background of global security governance]," *Guoji Guanxi Yanjiu* [Journal of international relations], No. 2 (2018): 49.

² Neil Hauer, "Russia's Mercenary Debacle in Syria: Is the Kremlin Losing Control?," *Foreign Affairs*, February 26, 2018, accessed June 15, 2018, <https://www.foreignaffairs.com/articles/syria/2018-02-26/russias-mercenary-debacle-syria>.

now invalid. This brings tremendous uncertainty to the global security system, and therefore should be prevented from happening at all costs.

China's Strategic Choices

As a fast-growing state power, China is no longer a passive observer in the remodeling of the international security system and the development of new military technologies. China should actively participate in the remodeling of the international security system, and engage on the level of designer, shaper or even leader.

I. Balancing Modernization with Transparency

Reasonable military transparency can effectively reduce suspicion and misjudgment between the major powers. Efforts were made during the Cold War, after the Cuba missile crisis. Later in the 1970s, the European Security Council passed the Helsinki Final Act, which required involved countries to pre-announce their major military actions, exchange military information, enhance exchanges between military forces, publicize military budgets, etc. These measures did work in terms of getting the arms race between Russia and the US under control, and are still relevant to the competition between the major powers today.

Since its reform and opening up to the outside world, China has preliminarily established an institution for military transparency, and the range that it covers has been steadily enlarged. However, Western countries remain suspicious. They question the reliability of China's military budget, and complain that the modernization of China's nuclear forces and the development of new weapons are still unknown to the outside world. Although some of the complaints are clearly biased or even totally groundless, they should be dealt with carefully as any misjudgment deriving from this could potentially lead to disaster. In order to avoid misunderstanding, China should weigh up with care the degree of its military transparency, and gradually enlarge the domain, so as to let the outside world gain reasonable understanding of China's military strategy, military budget, the structure of its armed forces, the number of its military personnel, and the development of its weapons.

II. Remaining Non-aligned

The dynamics and uncertainty of the new military revolution and intensified great power competition make it difficult for China to choose its national strategy effectively. Some scholars suggest that China should relinquish its non-aligned policy and stand closer with Russia, as the world is now increasingly bi-polarized.¹ While seemingly helpful at first glance in terms of mitigating the pressure from the United States, this does not conform with China's national interests in the long run, and is also not conducive to world peace and stability.

Firstly, to ally with Russia would be to significantly shrink China's potential for diplomacy, as well as its defense policy. Russia and the West now have deep structural contradictions. Russia sees NATO as a product of the Cold War, perceiving it as a great threat to Russia's security as its eastern enlargement compresses Russia's security space. On their part, the United States and the EU assert that Russia has no right to block a sovereign country that is willing to join NATO. NATO enhanced its military presence in Eastern Europe because it realized that Russia was still a major security threat, as demonstrated by the Ukraine crisis and the Russia-Georgian war. These geopolitical contradictions will hardly be solved in the near future, and new conflicts could appear at any time. Under such circumstances, it would be very dangerous and risky for China to ally with Russia.

Secondly, Russia is not the best choice for an ally. Contemporary diplomatic history shows us that Russia is not a reliable ally. After the Ukraine crisis, many of Russia's traditional allies such as Kazakhstan and Belarus started to draw a line with Russia. Strategically, Russia pays great importance to its sphere of influence, and is obsessed with geopolitical gaming. This is clearly inconsistent with China's goal of building a

¹ Yan Xuetong, "Eluosi kekao ma? [Is Russia reliable]," *Guoji Jingji Pinglun* [International economic review], No. 3, 2012; Yi Xin, "Zhuanfang Yan Xuetong (shang): Anquan lingyu liangjihua qushi yituxian [The trend of security bipolarization is getting clear: a special interview with Yan Xuetong, part I.]," *Fenghuang Dacankao* [Phoenix new media], July 3, 2016, accessed July 2, 2018, <http://pit.ifeng.com/dacankao/zhuanfangyi/1.shtml>.

community of shared future for Mankind. Besides, to ally with Russia provides China with little help, as Russia's national strength and military power are declining despite the fact that its military still ranks top among the other major powers.

Finally, to ally with Russia could potentially lead the international security system to the abyss of bipolar confrontation. The West has already defined Russia as a rival, and its misunderstandings of China are growing. If the two join forces, the world would again be divided into two blocks, and this would undoubtedly lead to great turbulence.

Accordingly, China should adhere to its policy of non-alignment. Russia should be treated as a partner, not an ally. This is not only conducive to China's national interests, but is also helpful globally, as the world as a whole meets new security challenges.

III. Balancing National Interests with Responsibility

China is now moving to the center of the world stage, and this brings with it some new responsibilities in its diplomacy and security policy.

On the one hand, China should firmly protect its core national interests by enhancing its military ability in key domains and key regions, or, in Xi Jinping's words: the ability to fight and win a war.¹ On the other, China must also summon courage in shouldering its responsibilities to global security, obey the basic norms of international laws, provide the world with more public goods, and promote the soundness and improvement of the global security system. In particular, China should enhance communication and coordination with those countries involved with affairs in the regions China is most concerned with. This includes Northeast Asia, the East China Sea and the South China Sea. Conflicts in these areas should be put under control, and a widely-accepted security mechanism should be established. The big powers should do what big powers are supposed to do. Today, the image of being a responsible great

¹ Xi Jinping, "Qianghua beizhan dazhang de xianming daoxiang, quanmian tigao xinshidai daying nengli [Strengthening the clear guideline to prepare for war and raise up in an all-round way the ability to win a war in the new era]," Xinhua Net, Nov. 3, 2017, accessed July 3, 2018, http://www.xinhuanet.com/politics/leaders/2017-11/03/c_1121903813.htm.

power is as important as the construction of military forces, if not more so. This is particularly true at a time when the images of other great powers like the US and Russia are withering. If China can make great and positive contributions to global security, it will certainly win itself an important position in the future world security system.

IV. Perfecting the New Security Concept

China's new security thinking can be traced back to 1995, and has been modified by leaders ever since. The key to this thinking is to emphasize cooperation instead of Cold War-type confrontation. In September 2009, Hu Jintao, China's president at the time, stressed that China stood for the principles of mutual trust, mutual benefit, equality and cooperation. China should take care of not only its own safety, but also the security concerns of other countries. Eventually it should construct a secure environment for mankind as a whole.¹ In May 2014, President Xi Jinping proposed the concept of common, comprehensive, cooperative and sustainable Asian security concept.² A successful embodiment of this new security thinking is the Shanghai Cooperation Organization.

In today's turbulent world, the value of the new security concept is clear. We can only avoid confrontation with the other major powers by sticking to it firmly. If we do so, we can also maintain world peace and development, and safeguard China's national interests. China should use this as a yardstick for dealing with arms development, strategic relations with others, regional hot spots, etc. At the same time, efforts should be made to perfect the new security concept so that it can be more generally and widely accepted, and eventually become the cornerstone for the new global security system.

(edited by Li Xin)

¹ "President Hu Jintao's Speech at the General Debate of the 64th Session of the UN General Assembly," Government of the People's Republic of China, September 24, 2009, accessed July 4, 2018, http://www.gov.cn/ldhd/2009-09/24/content_1424772.htm.

² Xi Jinping, "New Asian Security Concept for New Progress in Security Cooperation," Xinhua Net, May 21, 2014, accessed July 4, 2018, http://www.xinhuanet.com/world/2014-05/21/c_126528981.htm.