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STANDING ON ONE LEG: THE FUTURE OF THE RUSSIAN  
NUCLEAR TRIAD

by

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## *Preface*

The topic of the future of the Russian nuclear triad is one that is currently being debated within both the national policy-making and intelligence communities and one that must be understood clearly in order for the United States to formulate a viable, coherent foreign policy—one that realizes that the cold war is over but which also recognizes that national survival is paramount. This topic was suggested to me by a recent reading of an intelligence community document which indicated that there was room for additional research. If this report supplements knowledge about the current Russian nuclear triad, suggests the possible size and shape of the future triad, and prompts discussion and wise decision making in the foreign policy arena, I will have more than achieved my purpose in completing this study.

In the research and writing of this study, the gyroscope has been that of my faculty research advisor, Lt Col (now also Dr.) Charles E. Costanzo, a knowledgeable source in the arms control arena. His convenient access, professional manner, and straightforward assistance have been vital and are much appreciated.

*Abstract*

The Russian nuclear triad has existed for over 40 years and has become a familiar part of the international military scene—but will it continue to exist, and if so, in what form? This paper seeks to answer that question by examining recent professional journal articles by Russian and American experts alike, as well as Congressional testimony, academic studies, and a wide variety of national and international newspapers and periodicals. This study begins by describing the current Russian nuclear triad of intercontinental ballistic missiles (ICBM), ballistic missile nuclear submarines (SSBN), and strategic bombers. A discussion of the evolution of Russian nuclear weapons doctrine and policy to the current “launch on warning” doctrine is followed by a consideration of the seminal question in terms of pros and cons—reasons why Russia might logically either retain or divest herself of her nuclear triad. After describing the smaller but more capable triad that might exist in 2010, this study closes by concluding that Russia views the triad as key to her national security and identity and will retain and modernize her nuclear triad, regardless of obstacles.

## Chapter 1

### Introduction

*Nuclear weapons occupy a special place in providing strategic security today and for the foreseeable future. Today it may be said with complete confidence that the world community will step into the twenty-first century with nuclear weapons.*

—General-Lieutenant V.K. Potemkin

Few arrows in a nation's military quiver simultaneously solve yet also create as many problems as the arrow of nuclear weapons. For 40 years, both the Union of Soviet Socialist Republics (USSR) and the United States had sizable nuclear arsenals and the world gradually became accustomed to the existence and occasional blustering of two nuclear superpowers. Yet, just as suddenly as the strike of an arrow, the USSR fell, mortally wounded. In its place as the caretaker of a lethal nuclear arsenal stood Russia, a newborn republic struggling with its self-identity which, uncomfortably to some, was shaped imperceptibly yet powerfully by nuclear weapons. Since 1991, the existence of the Russian nuclear arsenal has arguably been more of a pain than a panacea, distracting attention from the more immediate concerns of food, shelter, medical care, the condition of the military, the economy, and a nascent political democracy. And thus the question comes, given the drastically changed global situation, does Russia still *need* a nuclear arsenal? Or perhaps more appropriately, can she *afford* (in every sense of the word) to retain her nuclear arrows?

## **Will Russia Retain Her Strategic Nuclear Triad?**

The objective of this study is to consider Russia's current and potential future nuclear arsenal and ultimately to answer this question definitively primarily by examining what US, Russian, and other nuclear weapons experts have said regarding the present Russian arsenal and prospects for the future. This topic is a significant one for policy maker, military officer, and intelligence officer alike, because the defense policy of the United States is inextricably tied to the perception of nuclear threats to our national existence. As long as Russia maintains a viable nuclear arsenal, US policy makers, military leaders, and intelligence community members need to understand the components of that arsenal and of Russian nuclear doctrine. This knowledge is critical in order to gauge the potential threat embodied in that arsenal and to formulate a critical component of a viable US foreign policy. In considering this topic, the reader should be aware that this study is inherently limited by several factors—the lack of Russian-language sources, the fact that this is not primarily a study of the various Strategic Arms Reductions Talks (START) treaties, and the fact that this is unclassified. Also, when speaking of the Russian nuclear arsenal, just as when speaking of its US counterpart, the common term is “strategic nuclear triad” and it is this term, or more simply “nuclear triad,” that will be used throughout this study.

### **The Legs of the Triad**

Before we can consider the ultimate fate of the Russian nuclear triad, however, we need to understand the general composition of this force. Simply put, the Russian nuclear triad consists of intercontinental ballistic missiles (ICBM), ballistic missile nuclear submarines (SSBN), and strategic bombers.<sup>1</sup>

In Russia, the ICBM force is considered the premier force. The military component which controls ICBM in Russia is the Strategic Rocket Forces,<sup>2</sup> historically considered by Russians and Westerners alike as an elite force which prides itself on its training, professionalism, and its perception as the tip of the spear. The second leg of the triad consists of SSBN, the nuclear-powered ballistic missile submarines,<sup>3</sup> considered by most nuclear weapons experts the most survivable leg of the triad due to their difficulty of detection. It is also this seaborne leg that is able to launch missiles with the least warning time to the intended victim. The final leg of the triad consists of the strategic bombers, historically the least significant leg of the triad, in terms of numbers and effectiveness and perhaps the most-discussed leg of late.<sup>4</sup>

#### Notes

<sup>1</sup> David Hoffman, "Downsizing a Mighty Arsenal: Moscow Rethinks Role As Its Weapons Rust," *Washington Post*, 16 March 1998, n.p.; on-line, Internet, 30 June 1998, available from <http://www.washingtonpost.com/wp-srv/Wplate/1998-03/16/1031-03169-idx.html>.

<sup>2</sup> Robert S. Norris and William M. Arkin, "Russian Strategic Nuclear Forces, End of 1997," *The Bulletin of the Atomic Scientists* 54, no. 2 (March/April 1998): 70.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.



## **Chapter 2**

### **Current Status of the Russian Nuclear Triad**

Before one can appreciate the debate over the Russian nuclear triad, the proposed changes to it, and the future fate of the triad, a knowledge of the characteristics and size of the present triad is necessary.

#### **Intercontinental Ballistic Missiles (ICBM)**

As she has since the 1950's, Russia depends heavily on the leg of the triad that most epitomizes a nuclear weapons capability, namely the ICBM, controlled by the Strategic Rocket Forces (SRF). The Russian ICBM force currently consists of six different types of ICBM.<sup>1</sup> Most experts agree that the current Russian ICBM force includes SS-18 heavy missiles, SS-19 missiles, both silo-based and road-mobile SS-24 missiles, road-mobile SS-25 missiles, and the SS-27, a new ICBM first deployed in December 1997.<sup>2</sup> (see appendix for specific weapon system information).

#### **Numbers of ICBM Deployed**

Due to variations in counting, the time the count is taken, definition of an operational system, and other variables, coming up with the total number of ICBM Russia currently has in its inventory can be challenging. For example, one authority claimed that as of October 1996, Russia had 738 ICBM launchers (the common term in the literature for

missiles and the term that will be used in this study) and 3,577 warheads.<sup>3</sup> Using late 1997 figures, a team of nuclear weapons experts writing in spring 1998 pegged the ICBM arsenal at 751 launchers and 3,610 warheads.<sup>4</sup> Another authoritative source concluded that as of January 1998, the strength of the ICBM leg of the triad stood at 801 launchers and 3,635 warheads.<sup>5</sup> The most recent and perhaps most accurate figure may be that provided in July 1998 by SRF chief Colonel-General Vladimir Yakovlev, who confirmed the number of launchers as 756 with 3,535 warheads.<sup>6</sup> Thus, it appears safe to conclude that Russia's current ICBM inventory stands at somewhere between 750 and 800 launchers with 3,500 to 3,600 warheads.

### **System Status and Modernization Efforts**

The current Russian ICBM leg of the triad suffers from various problems, all of which detract from combat readiness. Primary among these problems are financial ones, so critical that 1997 Central Intelligence Agency reports confirmed initial Russian reports that local utility managers had repeatedly shut off electrical power to various nuclear weapons-related facilities after military representatives there failed to pay their bills.<sup>7</sup> A nuclear arms expert noted recently that in the past six years, the Russian gross national product (GNP) has fallen by more than 50 percent and that in 1997 the defense portion was down to 3 percent, roughly 10 percent of the comparable Soviet figure of the mid-1980s and only 10 to 13 percent of the current US defense budget. This authority noted in conclusion that over the next decade, he expects Russian defense spending to be no more than 3.5 percent of GNP on average.<sup>8</sup> More recently, Colonel-General Yakovlev has said that personnel strength within the SRF has dropped 32 percent, so that they represent only 0.4 percent of Russia's military forces. He reiterated his earlier prophecy

that additional personnel cuts are likely.<sup>9</sup> Perhaps the most serious problem facing the ICBM force, however, is obsolescence. Simply put, the vast majority of Russia's missiles are already at or beyond their service lives, generally 10 to 15 years. It is for this reason, the fact that the ICBM force is most in danger of becoming obsolete, that modernization efforts to the Russian nuclear triad have already begun with this leg of the triad.<sup>10</sup> In the opinion of the SRF chief, the obsolescence figure for Russia's ICBM stands at 62 percent.<sup>11</sup>

Faced with these thorny problems, Russian authorities have decided to modernize rather than replace components, which should be easier, cheaper, and quicker. One of the ways they will do this for the ICBM force is through consolidation—that is, Russia plans to have a future ICBM force ultimately composed of only SS-27 missiles and hopes to reap the economic benefits that usually accrue from standardization of inventory and production.<sup>12</sup> The other major way to sustain the ICBM force is through a program of service life extension, which would generally consist of the replacement of key components within the missile with new ones, effectively extending the “use or lose” date of each missile.<sup>13</sup> The only other viable options for shoring up the arthritic ICBM leg appear to be either continued production of missiles that can be produced in Russian rather than Ukrainian factories, or producing completely new missiles to replace the obsolete types.<sup>14</sup> However, the first option seems remote, the second neither necessary nor feasible.

### **Ballistic Missile Nuclear Submarines (SSBN)**

The undersea leg of the Russian strategic nuclear triad is represented by the ballistic missile nuclear submarine force. Sometimes referred to as “boomers,” nuclear-powered

submarines carry multiple ICBM and serve as strategic, survivable weapons platforms targeted against any enemy homeland (see appendix for basic weapons information). Currently, the Russian SSBN force consists of Delta III, Delta IV, and Typhoon submarines deployed to the Northern and Pacific fleets, the former considered within Russian naval circles to be the more “important” of the two.<sup>15</sup>

### **Numbers of SSBN Deployed**

In attempting to determine the number of SSBN in the current Russian inventory, the problem is less one of large numbers than reaching agreement on what actually constitutes an active submarine. For example, if a submarine is unable to go to sea but can still fire its ballistic missiles from dockside, is it counted as a bonafide SSBN? Or what about a submarine that has had its missiles removed but has not yet been decommissioned? It has no current offensive punch, but can it be completely ignored? In any case, one analyst, using end of 1997 figures, tallied 23 submarines, 384 launchers, and 1,824 warheads;<sup>16</sup> in January 1998, another counted 22 SSBN, with 368 SLBM, and 1,776 warheads.<sup>17</sup> Thus, it appears safe to conclude that Russia currently has approximately 23 SSBN with an average of roughly 375 launchers and 1800 warheads.

### **System Status and Modernization Efforts**

Like their brothers in the SRF, officers and crews of Russian SSBN have witnessed dramatically reduced numbers of submarines and personnel in the fleet lately and also sharply reduced patrols. For example, at the height of the cold war there were normally 20 to 22 Russian SSBN on combat patrol; that number is now two and they normally operate on a short tether.<sup>18</sup> Unlike the independent SRF, the Russian SSBN fleet is still an integral part of the Russian Navy, which means it competes with the surface fleet for

funding, equipment, and personnel. As an indication of things to come within the Russian navy, in July 1998, Admiral Vladimir Kuroyedov, navy chief, reported that President Yeltsin had directed that the SSBN force carry 50 percent of the total number of Russia's nuclear warheads vice the 30 percent they now carry. The ultimate result of this decision is likely to be even further cuts to the surface fleet, which generally has been sacrificed to the needs of the SSBN fleet. As a result, warns first deputy commander-in-chief of the Russian fleet Admiral Igor Kasatonov, Russia's surface fleet is in danger of becoming a littoral rather than a blue-water force.<sup>19</sup> Additional albatrosses around the neck of the Russian navy include dated equipment, maintenance issues (as SSBN operate longer without proper maintenance, they create more noise, and thereby become easier to find and kill in wartime), sagging morale, food shortages, construction delays, and a legacy of inferior quality control.<sup>20</sup>

Yet, even in the midst of innumerable problems, there are signs that at least the SSBN fleet is coping. In spring 1997, Rear Admiral Michael Cramer, US Navy director of naval intelligence, testified before the US Senate Armed Services Committee and noted that although Russia's surface fleet is generally tied up at the docks, the SSBN force "is not suffering at all" in terms of economic hardship.<sup>21</sup> Furthermore, there have been several tests of the SSBN leg since 1994.<sup>22</sup>

Just as with the SRF, modernization is key to the survival of the SSBN fleet as a viable nuclear deterrent force. Within Russian military and political circles, modernization of the SSBN fleet is the second nuclear triad leg in terms of priority since it is the next after the ICBM force to become obsolete. The major modernization effort

of the SSBN fleet concerns two developments—a new class of submarines (*Borey*-class) and a new submarine-launched ballistic missile (SLBM), the SS-NX-28.<sup>23</sup>

### **Strategic Bomber Force**

The final leg of the Russian nuclear triad is the strategic bomber force, which basically consists of Tupolev-95, or “Bear” bombers in NATO parlance, four-engine turboprop aircraft, and more modern Tupolev-160, or “Blackjack” bombers. Both of these aircraft carry the AS-15 long-range nuclear air-launched cruise missile (ALCM) as their primary armament. The production line for all “Bear” bombers at Kuibyshev closed in 1995, and there are no plans to resume production of this aircraft.<sup>24</sup>

Sharply distinguished from its antiquated brother, the swept-wing, supersonic Tu-160 “Blackjack” is the most powerful combat aircraft in the Russian air force, especially considering its payload of 12 AS-15 ALCM, and the largest bomber in the world. However, when the Soviet Union collapsed, her only operational wing (19 aircraft) of “Blackjacks” was stationed in Ukraine. Protracted efforts to retrieve them have proven fruitless and now doomed. Thus, Russia has been left with six Tu-160 aircraft within her borders, reportedly only two of which are operational.<sup>25</sup>

### **Numbers of Strategic Bombers Deployed**

As the smallest leg of the triad, ascertaining the number of strategic bombers Russia has deployed currently is relatively straightforward. According to one authority, in January 1996, the Russian strategic bomber force (Tu-95 and Tu-160) consisted of 89 bombers equipped with 816 warheads; by October 1996, that number had decreased to 69 strategic bombers which still carried 800 ALCM, with the disparity in missile figures

largely attributable to different rules of counting for START purposes.<sup>26</sup> Other figures, from 1998, list either 69 or 70 bombers (28 or 29 Tu-95MS6, 35 Tu-95MS12, and 6 Tu-160) with 800 or 806 ALCM, indicating relative stability in the bomber inventory.<sup>27</sup>

### **System Status and Modernization Efforts**

However, appearances can be deceiving, for in truth the Russian strategic bomber force has always been considered, by Russians and non-Russians alike, as the “red-headed stepchild” of the nuclear triad, the one leg that could not support its own weight. As one authority has commented, “Not many Russian analysts take the future of the Russian strategic bomber force very seriously. Production of bombers has ceased and is unlikely to resume.”<sup>28</sup> In March 1998, a *Washington Post* foreign correspondent referred to experts who noted that it is most likely that the long-range bombers, “which have always been the least significant leg of the Russian triad,” will become obsolescent.<sup>29</sup>

Given this pessimistic prophecy concerning the strategic aviation leg of the triad, it would seem irrelevant to speak about modernization efforts. Yet, indications are that such are indeed underway, that concerted efforts will be made to maintain not only strategic aviation well into the next century, but also to upgrade the bombers (“Bear,” “Blackjack,” or possibly both) with improved ALCM. There are also indications that a subsonic, low-visibility replacement for the “Blackjack” may be on the drawing boards, though it appears highly unlikely that any monies will be earmarked for this purpose. Even if this does not happen, however, Russia still has the option of purchasing from the Kazan Aviation Production Association six “Blackjacks” that were in the pipeline when the Soviet Union fell and which have been slowly completed in the years since. Recent reports indicate that the Russian Defense Ministry now has the necessary funds to

purchase these aircraft and intends to do so.<sup>30</sup> Thus, the strategic aviation leg of the triad continues to limp along, with an equal admixture of predictions of modernization on the one hand and obsolescence on the other.

## Notes

<sup>1</sup> “Government Endorses Strategic Nuclear Triad, But...,” *The Monitor*, 8 July 1998, n.p.: on-line, Internet, 25 September 1998, available from [www.jamestown.org/pubs/view/mon\\_004\\_130\\_001.htm](http://www.jamestown.org/pubs/view/mon_004_130_001.htm).

<sup>2</sup> Ibid.

<sup>3</sup> Stephen J. Cimbala, “Russia’s Nuclear Drawdown: Justice Delayed or Denied?,” *European Security* 6, no. 3 (Autumn 1997), 68.

<sup>4</sup> Robert S. Norris and William M. Arkin, “Russian Strategic Nuclear Forces, End of 1997,” NRDC Notebook, *The Bulletin of the Atomic Scientists* 54, no. 2 (March/April 1998): 71.

<sup>5</sup> Paul Podvig, “The Russian Strategic Forces: Uncertain Future,” on-line, Internet, 17 August 1998, available from <http://blue.iris.mipt.ru/lat/transforming/podvig.htm>.

<sup>6</sup> “Russian Strategic Forces Chief Defends START 2,” *Russia Today*, 3 July 1998, n.p.; on-line, Internet, 9 July 1998, available from [www.russiatoday.com/rtoday/news/98070307.html](http://www.russiatoday.com/rtoday/news/98070307.html).

<sup>7</sup> Bruce G. Blair, Harold A. Feiveson, and Frank N. Von Hippel, “Taking Nuclear Weapons off Hair-Trigger Alert,” *Scientific American*, November 1997, 76.

<sup>8</sup> Dean A. Wilkening, “The Future of Russia’s Strategic Nuclear Force,” *Survival* 40, no. 3 (Autumn 1998), 89.

<sup>9</sup> “Russian Strategic Forces Chief Defends START 2.”

<sup>10</sup> Wilkening, 91.

<sup>11</sup> David Hoffman, “Downsizing a Mighty Arsenal: Moscow Rethinks Role as Weapons Rust,” *Washington Post*, 16 March 1998, n.p.; on-line, Internet, 30 June 1998, available from <http://www.washingtonpost.com/wp-srv/Wplate/1998-03/16/1031-03169-idx.html>.

<sup>12</sup> William M. Arkin, “Forces for the Millenium,” *The Bulletin of the Atomic Scientists* 54, no. 5 (September/October 1998): 72.

<sup>13</sup> Podvig, “The Russian Strategic Forces: Uncertain Future.”

<sup>14</sup> Wilkening, 92.

<sup>15</sup> Podvig, “The Russian Strategic Forces: Uncertain Future”; Wilkening, 97; Joshua Handler, “Russia Seeks to Refloat a Decaying Fleet,” *Jane’s International Defense Review* 1/1997, 43.

<sup>16</sup> Norris and Arkin, 71.

<sup>17</sup> Podvig, “The Russian Strategic Forces: Uncertain Future.”

<sup>18</sup> Hoffman, “Downsizing a Mighty Arsenal.”



## Notes

<sup>19</sup> “Government Endorses Strategic Nuclear Triad, But...”; Dr. Mark Galeotti, “Russian Naval Priorities Outlined by Kasatonov,” *Jane’s Intelligence Review* 9, no. 3 (March 1997): 2.

<sup>20</sup> Joshua Handler, “Russia Seeks to Refloat a Decaying Fleet,” *Jane’s International Defense Review* 1/1997, 46.

<sup>21</sup> Barbara Starr, “Russian Subs ‘Not Suffering,’ Says US Navy,” *Jane’s Defence Weekly*, 16 April 1997, 5.

<sup>22</sup> “Russian Subs Conduct Large Nuclear Missile Exercise,” *Foreign Policy Alert* 20, 2 July 1996; on-line, Internet, 30 June 1998, available from [www.afpc.org/fpa/fpa20.htm](http://www.afpc.org/fpa/fpa20.htm).

<sup>23</sup> David A. Fulghum, “Russian Missile Tests Yield Mixed Results,” *Aviation Week and Space Technology*, 19 January 1998, 30.; Hoffman, “Downsizing a Mighty Arsenal”; Wilkening, 97-98; Woolf, 14.

<sup>24</sup> Podvig, “The Russian Strategic Forces: Uncertain Future”; Wilkening, 100.

<sup>25</sup> Hoffman, “Downsizing a Mighty Arsenal”; Podvig, “The Russian Strategic Forces: Uncertain Future”; “Russia Will Not Buy Ukrainian Strategic Bombers,” BBC News, 25 March 1998, n.p.; on-line, Internet, 30 June 1998, available from [www.news.bbc.co.uk/hi/english/world/europe/newsid\\_69000/69676.stm](http://www.news.bbc.co.uk/hi/english/world/europe/newsid_69000/69676.stm); “Russian Air Force to Get New Blackjack Strategic Bombers,” *The Monitor*, 29 October 1997, n.p.; on-line, Internet, 18 September 1998, available from [www.jamestown.org/pubs/view/mon\\_003\\_202\\_000.htm](http://www.jamestown.org/pubs/view/mon_003_202_000.htm); “Ukraine to Scrap Ex-Soviet Bombers,” *The Monitor*, 24 April 1998, n.p.; on-line, Internet, 18 September 1998, available from [www.jamestown.org/pubs/view/mon/004/079\\_004.htm](http://www.jamestown.org/pubs/view/mon/004/079_004.htm).

<sup>26</sup> Cimbala, 68.

<sup>27</sup> Podvig, “The Russian Strategic Forces: Uncertain Future”; Hoffman, “Downsizing a Mighty Arsenal.”

<sup>28</sup> Joshua Handler, “Russia Ready for START III,” *The Bulletin of the Atomic Scientists*, January/February 1996, 12.

<sup>29</sup> Hoffman, “Downsizing a Mighty Arsenal.”

<sup>30</sup> Arkin, “Forces for the Millenium,” 72; Nick Cook, “Russian Air Force is Down, But Not Out,” *Jane’s Defence Weekly*, 19 March 1997, 23; Gen (retired) Eugene E. Habiger, “Security of the Russian Nukes,” *Air Force Magazine*, February 1998, 76; “Russian Air Force to Get New Blackjack Strategic Bombers”; Wilkening, 99; Amy F. Woolf and Kara Wilson, *Russia’s Nuclear Forces: Doctrine and Force Structure Issues*, CRS Report (Washington, D.C.: Congressional Research Service, 1997), 1.

## Chapter 3

### Russian Nuclear Weapons Policy and Doctrine

*Russia retains the right to use all available forces and means, including nuclear weapons, if armed aggression launched against it threatens the very existence of the Russian Federation as an independent, sovereign state.*

—National Security Concept, December 1997

Having described the current Russian strategic nuclear triad, the question comes, how does Russia anticipate using this power or, to put it another way, what circumstance or set of circumstances would induce Russia to engage a foe using nuclear weapons? In order to answer that basic question, one must understand Russian nuclear weapons policy and doctrine—how they used to be, how they are now, and especially the difference between nuclear weapons policy and doctrine.

It is important for the reader to recognize the fact that the decision to go to war is a political one, not a military one—politicians decide for war, generals are tasked with successfully carrying out that political decision, a truism as valid for Russia as for the United States. While the concept of a rogue military blackmailing the globe with nuclear weapons makes an engaging read, it belongs in the realm of intelligence fiction rather than global political fact. For purposes of this study, Russian nuclear weapons *policy* will refer to political decisions and pronouncements that define and explain national attitudes toward the potential use of nuclear weapons; by contrast, Russian nuclear weapons

*doctrine* will refer to how the military will use these weapons once the national command authority has approved their use. Thus, policy refers to the *what* and the *why*, doctrine to the *how*.

With these definitions in mind, let us look at the evolution of Russian nuclear weapons policy. In 1982, the USSR pledged “no first use”—that is, the Soviet Union would never make a preemptive strike with nuclear weapons; they would be used only in defense. However, following the breakup of the USSR, a noticeable doctrinal shift took place within the new Russian state. This shift, first seen in Russia’s May 1992 draft military doctrine, was reiterated in November 1993 with the promulgation of Russia’s new military doctrine, Basic Provisions of the Military Doctrine of the Russian Federation, a portion of which read, “The aim of the Russian Federation in the sphere of nuclear weapons is to eliminate the danger of a nuclear war by deterrence against the unleashing of aggression against the Russian federation and allies. Russia does not see nuclear weapons as a means of conducting military acts, rather as a means of deterrence against such aggression.”<sup>1</sup> As one commentator has noted, this transitional doctrine dealt with nuclear weapons in macrocosm—gone were the references in Soviet doctrine to winning a nuclear war through massive strikes. The emphasis was now on defensive use of these weapons, to protect Russia and her allies from *conventional* attacks on nuclear forces and sensitive facilities by potential adversaries. The Russian reasoning was that the conventional military power of the West endangered Russia’s strategic forces and therefore justified the return to the “first use” concept. Although dismissed by some foreign observers as mere bluster and seemingly innocuous on its face, this statement

indicated a clear about-face from the “no first use” pledge since the potential of nuclear response to *conventional* attacks, regardless of target, constituted “first use.”<sup>2</sup>

Since 1993, with perhaps one notable exception, Russian policy (and subsequently doctrine) has moved toward a greater rather than lesser reliance on nuclear weapons.<sup>3</sup> The “notable exception” refers to the May, 1994 agreement between Presidents Yeltsin and Clinton that their missiles would no longer be targeted at one another. A leading strategic analyst described this agreement as “a step back from this trigger-happy situation” but quickly added that it was actually “a gimmick, because it’s reversible in one or two minutes.” According to a Russian specialist, the actual retargeting time is 10 to 15 seconds.<sup>4</sup> By 1995, an analyst already was speaking of Russian nuclear strategy as “launch on warning,” meaning Russia would retaliate after an enemy first strike was launched, but prior to impact.<sup>5</sup> Any doubts that might have remained about the new Russian policy were removed by a tense series of events that occurred in January 1995 when the launch of a Norwegian scientific rocket inadvertently prompted a national nuclear alert in Russia. Russian early warning radars developed to alert Russian authorities to the launch of ballistic missiles from US submarines had miscalculated the trajectory of the rocket and thereby inadvertently created a near cataclysm.<sup>6</sup>

Then, in February 1997, in the clearest indication to date of Russia’s changed policy, Ivan Rybkin, the head of the Russian Security Council, thundered, “If an aggressor starts a war against us using conventional weapons, we may respond with nuclear ones.”<sup>7</sup> Little wonder that an analyst commented, “Many Europeans believe that renewed Russian interest in reliance upon nuclear weapons to offset conventional inferiorities, with modernization programs to match, must be redirected if stability is to be maintained

on the Continent.”<sup>8</sup> By December 1997, when Russia’s new National Security Concept was announced, Russia had retained the right, as noted earlier, to use nuclear weapons if necessary to preserve the existence of Russia as a sovereign state. Turning to military doctrine, the document went on to say, “The main task of the armed forces of the Russian Federation is to ensure nuclear deterrence, which is to prevent both a nuclear and conventional large-scale or regional war, and also to meet its allied commitments. To accomplish this task, the Russian Federation should have a potential of nuclear forces which can guarantee that planned damage will be caused to any aggressor state or coalition of states.”<sup>9</sup>

In July 1998, the Russian Security Council met in closed session to discuss nuclear forces’ future funding and structure. To the surprise of no one who had followed the progression of Russian thought for any length of time, the Council reiterated the nuclear arsenal as a basic element of national security. Furthermore, during televised remarks to the Security Council, President Yeltsin commented, “Nuclear forces are some of the most important factors ensuring the security of our country,” then wryly added, “The fact that reports here and there in the media that we have got weaker on the nuclear front, first of all, they are seriously mistaken, and second, they do not help the state.”<sup>10</sup> Echoing his superior, Colonel-General Yakovlev commented that Moscow’s ability to prosecute nuclear war was undiluted from what it had been during the days of the Soviet Union.<sup>11</sup> Also as an aftermath of the Security Council meeting, Prime Minister Sergei Kirienko made the obligatory ritual visit to SRF headquarters, where he declared that Russia’s strategic nuclear arsenal was “the foundation of independence and strength of the state”

and added a comment that no matter how severe Russia's fiscal crisis might become, the arsenal was one of the "absolutely inviolable things which must and will be financed."<sup>12</sup>

Although "launch on warning" is the current Russian policy, the ultimate goal is a "delayed second strike"—that is, to be able to absorb a first strike and then launch a counterstrike with mobile ICBM primarily and also with SSBN. With this goal in mind, the Russians are building a superhardened underground command and control site in the southern Ural mountains, one of several underground construction projects in Russia shrouded in secrecy. However, until "delayed second strike" becomes policy (if ever), launch on warning will be the declared Russian policy concerning nuclear weapons.<sup>13</sup> In order to aptly describe the relationship between the two superpowers, Russia and the United States, one analyst has suggested the term "residual deterrence," in which the two primary nuclear weapons states are no longer in a state of conflict but both retain their nuclear arsenals as if the strategic deterrence attitude of the cold war were still relevant.<sup>14</sup> This viewpoint follows logically if one accepts the premise of another commentator, who points out that the heart of deterrence is structuring strategic force in order to respond to enemy *capabilities* vice *intentions*.<sup>15</sup>

### Notes

<sup>1</sup> Amy F. Woolf and Kara Wilson, *Russia's Nuclear Forces: Doctrine and Force Structure Issues*, CRS Report (Washington, D.C.: Congressional Research Service, 1997), 4.

<sup>2</sup> Bruce Blair, "Russian Nuclear Policy and the Status of Detargetting," 13 March 1997, n.p.; on-line, Internet, 30 June 1998, available from [www.brook.edu/fp/testimon/blair.htm](http://www.brook.edu/fp/testimon/blair.htm).; Steven E. Miller, "Russia and Nuclear Weapons," in *The Nuclear Challenge in Russia and the New States of Eurasia*, ed. George Quester (Armonk, N.Y.: M.E. Sharpe, 1995), 94, 97; William M. Arkin, "Forces For the Millenium," *The Bulletin of the Atomic Scientists* 54, no. 5 (September/October 1998): 72.

## Notes

<sup>3</sup> Blair, "Russian Nuclear Policy."

<sup>4</sup> David Hoffman, "Downsizing a Mighty Arsenal: Moscow Rethinks Role as Weapons Rust," *Washington Post*, 16 March 1998, n.p.; on-line, Internet, 30 June 1998, available from <http://www.washingtonpost.com/wp-srv/Wplate/1998-03/16/1031-03169-idx.html>.

<sup>5</sup> Bruce G. Blair, "Russian Control of Nuclear Weapons," in *The Nuclear Challenge in Russia and the New States of Eurasia*, ed. George Quester (Armonk, N.Y.: M.E. Sharpe, 1995), 59.

<sup>6</sup> Christopher Bluth, "Russia's Nuclear Forces: A Clear and Present Danger?" *Jane's Intelligence Review* 9, no. 12 (December 1997), 549.

<sup>7</sup> Jorgen Wouters, "The Legacy of Doomsday," ABC News, 30 June 1998, n.p.; on-line, Internet, 30 June 1998, available from <http://204.202.137.112/sections/world/nuclear1c.html>.

<sup>8</sup> Jacquelyn K. Davis, et al., "The Looming Alliance Debate Over Nuclear Weapons," *Joint Forces Quarterly*, Spring 1997, 82.

<sup>9</sup> Edward L. Warner III, "Nuclear Deterrence Force Still Essential," published by American Forces Information Service, a field activity of the Office of the Assistant Secretary of Defense (Public Affairs), Washington, D.C.; on-line, Internet, 24 September 1998, available from US Department of Defense homepage.

<sup>10</sup> Arkin, 72; "Yeltsin Says Nuclear Force Not Weaker," *Russia Today*, 7 July 1998, on-line, Internet, 9 July 1998, available from [www.russiatoday.com/rtoday/news/98070710.html](http://www.russiatoday.com/rtoday/news/98070710.html).

<sup>11</sup> "Yeltsin Says Nuclear Force Not Weaker," *Russia Today*, 7 July 1998, on-line, Internet, 9 July 1998, available from [www.russiatoday.com/rtoday/news/98070710.html](http://www.russiatoday.com/rtoday/news/98070710.html).

<sup>12</sup> "Government Endorses Strategic Nuclear Triad, But..." *The Monitor*, 8 July 1998, n.p.; on-line, Internet, 25 September 1998, available from [www.jamestown.org/pubs/view/mon\\_004\\_130\\_001.htm](http://www.jamestown.org/pubs/view/mon_004_130_001.htm).

<sup>13</sup> Blair, "Russian Control of Nuclear Weapons," 73.

<sup>14</sup> Bluth, 548.

<sup>15</sup> Michael R. Boldick, "The Dangerous Myths of START II," *Parameters*, Spring 1994, 84.

## Chapter 4

### Will the Nuclear Triad Continue to Exist?

*All we have is the nuclear stick. Of course, we should all together decrease this nuclear danger. But right now, we have nothing else. We're naked. Can you imagine that?*

—Lev Volkov

We now move to consider the seminal question of this study—will the Russian nuclear triad continue to exist in the future? Given the statements made by Russian political and military leaders, as well as those by Russian and other nuclear weapons analysts, the question might seem rhetorical. And yet, the reader would do well to remember how often personal, much less national, desires and intentions are thwarted by one or a combination of factors. Thus, in this chapter we will examine *both* potential answers to this question, namely, several reasons why Russia *will not* retain her nuclear triad in the future and various reasons why she will. Of note, most writers who have addressed this subject have spoken to both sides of the issue simultaneously—that is, they too have looked at reasons Russia might and might not hold on to her nuclear weapons. Thus, which side of the fence a writer comes down on should not necessarily be extrapolated by the answers they give to the various advantages and disadvantages, but rather by the entirety of their writing on the subject.



## **Why Russia Will Not Retain Her Nuclear Triad**

The first reason Russia will *not* retain her nuclear arsenal is the simplest—she no longer needs a strategic nuclear arsenal because the threat has changed. The fall of the Soviet Union has meant a rapprochement with the United States in place of the near half-century adversarial relationship. As one writer has noted in examining the differences between the Soviet and Russian perceptions of nuclear weapons, Russia is presently more concerned with internal and regional conflicts than with international war.<sup>1</sup> Thus, if the nuclear arsenal created to deal with the threat of the United States is no longer relevant to Russia's current international concerns, why maintain a strategic nuclear triad?

A second compelling reason Russia will give up her nuclear arms is because she can no longer afford to maintain this arsenal, given her dire financial straits. In April 1994, Lieutenant General Yuriy Merkulov warned a parliamentary hearing that if diminished funding continued, Russia could be without strategic nuclear weapons by the end of the century.<sup>2</sup> A 1996 article concluded that if strategic funding remained unchanged, the Russian military would be unable to fund the 3,000 to 3,500 weapons authorized by the START II treaty, much less the levels authorized by START III, and that if Russia could not meet START III levels, she would find it “very difficult” to maintain parity with the United States.<sup>3</sup> Two analysts have said simply that Russia can no longer afford a modern nuclear arsenal.<sup>4</sup>

Third, the Russian military is rapidly shrinking, meaning that there is less and less of a labor force, especially one capable of handling nuclear weapons. Since 1991, troop strength has dropped from over 4 million to less than 2 million as Russia moves to a smaller, more mobile force that will, by definition, be stretched very thin.<sup>5</sup> The smaller

the military, the less likely Russia will be able to find enough, and enough qualified, troops to maintain her nuclear arsenal.

A fourth reason Russia will not retain her nuclear forces is that the nuclear response system and the infrastructure that supports it are deeply, even dangerously, broken. The most recent example of this situation concerns the 25 January 1995 launch of a Norwegian science rocket to investigate the Northern Lights. As the rocket climbed through the darkness that night, radar operators all over northern Russia picked up a suspicious blip on their radar screens. Trained to know that a US submarine could launch a MIRVed SLBM from nearby waters and subject Moscow to nuclear attack within 15 minutes, the radar operators notified their superiors. The alert quickly moved through the upper ranks of the Russian military to Boris Yeltsin, who activated the nuclear “suitcase,” the first time ever, that could initiate a nuclear strike. As Yeltsin nervously conferred with his subordinates, radar operators focused their attention on the rocket, which had now separated into stages—or were they the separate warheads heading for distinct targets? After a tense 8-minute vigil, senior military officers determined the rocket was actually headed out to sea and posed no threat to the Rodina (Motherland). In the aftermath of this possible near-Armageddon, it was discovered that Norway had previously notified Russia of the impending launch, but somehow the word had never been passed to the proper authorities. This incident is just one example of the decaying radar network in Russia, so unreliable that information gleaned from it is considered suspect by definition. Even the nuclear “suitcases” carried by the president, defense minister, and chief of the General Staff are reportedly falling apart.<sup>6</sup> Thus, the critical

early warning system does not work reliably, thereby endangering the Russian strategic arsenal and Russia herself.

Finally, Russia will not maintain her nuclear triad because the ever-increasing obsolescence of the triad is, practically speaking, irreversible. Earlier in this study we noted the obsolescence plaguing, in order from most to least, the ICBM force, the SSBN force, and the strategic bomber force. In the words of the former chief of US Strategic Command General Eugene Habiger, following a 1997 visit to various SRF facilities in Russia, “The Russians weren’t modernizing their forces as we were during that time [1980s], and what’s happening is that the service life of their systems is coming to an end, and that’s one of the reasons why, in my view, the Russians very much want to get down to START III levels very quickly...”<sup>7</sup> Obviously one of the ways to sidestep the entire issue of obsolescence of the strategic nuclear triad is to do away with the force entirely.

### **Why Russia Will Retain Her Nuclear Triad**

A primary and growing reason that Russia will retain her nuclear arsenal is one that is seemingly unrelated and therefore overlooked—the expansion of NATO. In May 1997, Russia reluctantly agreed to the expansion of NATO in return for a joint NATO-Russia security issues council and a NATO pledge that no nuclear weapons would be placed in the territory of the new members. Despite the best efforts of the Clinton administration to divorce the issues of nuclear weapons and the expansion of NATO, many Russians insist on their organic unity, arguing that the addition of Poland, Hungary, and the Czech Republic to NATO in April 1999 is a direct threat. Equally disturbing is the fact that NATO expansion also may be linked to the continuing refusal of the Duma

to ratify the START II agreement, which has languished for several years now after being approved by the US Congress. Without Duma approval of this treaty, no movement can be made toward a START III agreement.<sup>8</sup> Nor was this opposition to the expansion of NATO a last-minute decision of the Russian hierarchy. In autumn 1996, Oleg Grynevsky, Russian ambassador to Sweden and an ex-arms control negotiator, warned that NATO expansion would increase the threat of nuclear war. He then added the not-so-veiled threatening reminder that Russia had sufficient nuclear weapons to destroy both Europe and the United States.<sup>9</sup> The reason NATO expansion into Eastern Europe is of such great concern to the Russians is that at least some senior Russian officials still believe that the main threat to their nation will come from NATO and the United States. In the words of former Russian defense minister General Igor Rodionov, “matters may go so far that we might retarget missiles, directing them at some European countries that will join NATO.”<sup>10</sup> A Canadian international affairs expert notes that NATO paid little heed to how the proposed expansion would be perceived in Moscow, that NATO expansion continues to be opposed by the entire breadth of the Russian political spectrum, and that if mishandled, NATO in the 1990s has the potential to become another Versailles Treaty, with Russia playing role of Germany.<sup>11</sup> A possible side effect of NATO expansion might be Russian redeployment of tactical nuclear weapons.<sup>12</sup> Another observer has likened the issue to that addressed in a book by Pulitzer Prize-winning historian Barbara Tuchman, entitled *The March of Folly: From Troy to Vietnam*, which looked at great mistakes throughout history. Speaking of the Clinton administration, this author notes, “While the administration repeatedly says that the expansion of NATO is not aimed at any country, everyone knows that Russia is the bogeyman that expansion is designed to cuff.” Equally

appalled is George Kennan, the father of the containment policy of the 1950s, who described NATO expansion as “the most fateful error of American policy in the entire post-Cold War era.”<sup>13</sup> Thus, given Russian perceptions of NATO expansion and the misgivings of Westerners over the issue, Russia will retain her nuclear weapons to protect herself against a resurgent NATO soon to be in her backyard.

A second reason Russia will maintain her nuclear triad is connected to the new definition of deterrence. Whereas Russia once could count on both nuclear weapons and the size, modernity, and lethality of her conventional forces to act as deterrents, her conventional forces have noticeably shrunk and aged poorly. Thus, as their conventional forces shrink, Russian military and political leaders have placed “renewed emphasis” on the nuclear triad.<sup>14</sup> Elaborating on this theme, another observer has noted, “Russia now faces, according to some of its military thinkers, the possibility of insufficient deterrence of, or defense against, prompt strategic attacks with conventional weapons against its homeland targets. Russia’s downsized and denuded conventional forces, compared to their former Soviet counterparts, may encourage reliance upon nuclear forces as first resort instead of delayed response weapons.”<sup>15</sup> A retired Russian general officer, now an established writer on nuclear matters, concurs, adding, “For now, nuclear weapons ... will be one of the principal means of Russia’s defense because of its conventional inferiority and its economic weakness.”<sup>16</sup> While there is no consensus on whether this renewed emphasis on nuclear weapons is a temporary policy or a “fiscally-prudent long-term strategy,”<sup>17</sup> there is recent evidence to suggest that it well may be the latter. In an August 1998 article, an experienced observer and writer on nuclear weapons issues concluded that “Russia ... continue[s] to value nuclear weapons for both political status

... and to overcome what it sees as a growing conventional inferiority. *In fact, nuclear weapons appear to play a growing role in the security policy of Russia, both in declaratory statements and defense planning.*” (Emphasis added)<sup>18</sup>

A third reason Russia will retain her nuclear triad is because she desperately wants to remain a “great power” and believes that possession of nuclear weapons supports that claim.<sup>19</sup> Simply put, from a domestic perspective, Russia needs nuclear weapons to retain both international prestige and self-respect.<sup>20</sup> A 1997 report to the US Congress described Russia’s nuclear arsenal as her “last trump card for superpower status” and as her *only* claim to superpower status now, as opposed to several during the heyday of the Soviet Union.<sup>21</sup> As one observer has noted, while discussing world pressure for nuclear disarmament, “It cannot be realistic to expect Russia to accept these arguments and to disarm when its nuclear arsenal remains its only claim to superpower status.”<sup>22</sup>

For those who might observe that Russia has no need for a nuclear arsenal because she is now at peace with her long-time nuclear rival, the United States, most Russian military and political leaders would agree, although as late as 1996, then-Russian defense minister Rodionov essentially stated during a Russian television interview that Russia’s probable future enemies would be the United States and the other NATO states.<sup>23</sup>

However, this opinion now seems to be a minority one. Most Russian military and political decision makers would quickly note that Russia still faces threats, though from different quarters. Such observers would reorient Russia’s threat analysis to the south and east—to the Islamic world and China, respectively—rather than to the West, arguing that Russia’s lengthy and generally unguarded southern border is of greater concern. Especially worrisome are Iran, Iraq, and the newest members of the nuclear club, India

and Pakistan—for all of these nations, Russia’s nuclear arsenal would be a pointed “reminder” should these nations be tempted to engage in nuclear blackmail against Russia.<sup>24</sup> Russia is also potentially threatened by such regional security powers as Britain, France, and China, all of whom are modernizing their nuclear arsenals while Russia is drawing down hers in accordance with the START I and II international arms control agreements.<sup>25</sup>

A fifth reason Russia will retain her “big stick” is a common-sense one—namely, the fact that both modernization and exercise of the triad and its components continue to the present. A 1992 prediction of the condition of the Russian military in the year 2000 concluded that “research and development of strategic nuclear systems will remain a priority and continue but will be hampered by the greatly decreased budget.”<sup>26</sup> The modernization efforts and the new systems referred to earlier indicate this effort continues and it would be non-sensical to continue an effort that costs tremendous and limited resources, effort, and time if it were doomed to failure. The author of the most-recent study of the Russian nuclear triad concludes that there appears to be a general agreement within the Russian hierarchy that modernization of the triad will be a high priority.<sup>27</sup> Given such statements from notable Russian authorities, it is highly unlikely that the current triad will disappear.

An additional reason that Russia will continue to be a nuclear weapons power is an ironic one—possession of nuclear weapons seems to make war *less* rather than *more* likely. After noting that disarmament would be feasible only if a revolution in political affairs occurred, one authority has concluded that “well-designed and well-managed nuclear arsenals will continue to contribute to avoiding nuclear war.”<sup>28</sup> This view is

echoed by a Russian writer who says that one of several components of the Russian attitude toward nuclear weapons is the commonly-held view of Russian strategic planners that “Strategic nuclear weapons are the foundation of international security because they are believed to prevent a war among the major powers and possibly regional wars as well.”<sup>29</sup> Finally, a noted British author has penned, “The absence of war between advanced states is a key success. We must seek to perpetuate it. Weapons are instrumental and secondary; the basic aim is to avoid war. *Better a world with nuclear weapons but no major war than one with major war but no nuclear weapons.*” (Emphasis added)<sup>30</sup> Positing that disarmament is not desirable, at least not given current international conditions, he also quotes Salvador de Madariaga, once chairman of the League of Nations Disarmament Commission, who wrote, “Nations don’t distrust each other because they are armed; they are armed because they distrust each other. And therefore to want disarmament before a minimum of common agreement on fundamentals is as absurd as to want people to go undressed in winter. Let the weather be warm, and they will undress readily enough without committees to tell them so.”<sup>31</sup>

Finally, Russia will retain her nuclear weapons for financial reasons—simply put, it is cheaper for Russia to maintain and even modernize her nuclear triad than it is for her to modernize her still-extensive conventional forces. As one writer has noted, the current Russian thought process in this regard is ironically identical to that which went on in the minds of senior US military officers in the 1960s and 1970s—namely, that we could not afford enough conventional weapons to keep pace and therefore needed a “cheap equalizer,”<sup>32</sup> which was nuclear weapons. Furthermore, as a Russian arms control expert



noted, “Though not cheap, the nuclear deterrent is still less expensive than the conventional one, and it carries a much stronger hands-off message.”<sup>33</sup>

Thus, in the final analysis, for every reason Russia might have *not* to retain her nuclear triad, no matter how valid, there are powerful reasons that she *will* retain these weapons, not the least of which is the decision of the Russian political leadership to maintain this capability, whatever the cost. As the saying goes, “Where there’s a will, there’s a way.”

### Notes

<sup>1</sup> Amy F. Woolf and Kara Wilson, *Russia’s Nuclear Forces: Doctrine and Force Structure Issues*, CRS Report (Washington, D.C.: Congressional Research Service, 1997), 1.

<sup>2</sup> Joshua Handler, “The Future of Russian Strategic Forces,” *Jane’s Intelligence Review* 7, no. 4 (April 1995), 163.

<sup>3</sup> Joshua Handler, “Russia Ready for START III,” *The Bulletin of the Atomic Scientists*, January/February 1996, 11.

<sup>4</sup> David Hoffman, “Downsizing a Mighty Arsenal: Moscow Rethinks Role as Weapons Rust,” *Washington Post*, 16 March 1998, n.p.; on-line, Internet, 30 June 1998, available from <http://www.washingtonpost.com/wp-srv/Wplate/1998-03/16/1031-03169-idx.html>; Robert G. Joseph and John F. Reichert, “The Case for Nuclear Deterrence Today,” *Orbis* 42, no. 5 (Winter 1998), 9.

<sup>5</sup> David R. Markov, “The Russians and Their Nukes,” *Air Force Magazine*, February 1997, 40.

<sup>6</sup> Bruce G. Blair, Harold A. Feiveson, and Frank N. von Hippel, “Taking Nuclear Weapons off Hair-Trigger Alert,” *Scientific American*, November 1997, 75-76.

<sup>7</sup> General Eugene E. Habiger, USAF (retired), “Security of the Russian Nukes,” *Air Force Magazine*, February 1998, 76.

<sup>8</sup> Alan Geyer, “NATO Expansion: Dividing the House of Europe?” *Christian Century*, 4-11 June 1997, 566.

<sup>9</sup> Victor Israelyan, “Russia at the Crossroads: Don’t Tease a Wounded Bear,” *The Washington Quarterly* 21, no. 4 (Winter 1998), 59.

<sup>10</sup> Markov, 41.

<sup>11</sup> Alain Pellerin, “NATO Enlargement: The Way Ahead,” 14 February 1998, on-line, Internet, 17 August 1998, available from [www.fas.org/man/eprint/nato-calgary.htm](http://www.fas.org/man/eprint/nato-calgary.htm).

<sup>12</sup> Tim Zimmerman, “Russia’s Ace in the Hole,” *U.S. News and World Report*, 2 June 1997, 43.

## Notes

<sup>13</sup> Ronald E. Powaski, "Joining the March of Folly," *Bulletin of the Atomic Scientists* 54, no. 1 (January/February 1998), 18-19.

<sup>14</sup> Christopher Bluth, "Russia's Nuclear Forces: A Clear and Present Danger?" *Jane's Intelligence Review* 9, no. 12 (December 1997), 551.

<sup>15</sup> Stephen J. Cimbala, "Russia's Nuclear Drawdown: Justice Delayed or Denied?" *European Security* 6, no. 3 (Autumn 1997), 82.

<sup>16</sup> Johnathan Schell, "The Gift of Time," *Nation*, 2-9 February 1998, 48.

<sup>17</sup> Steven E. Miller, "Russia and Nuclear Weapons," in *The Nuclear Challenge in Russia and the New States of Eurasia*, ed. George Quester (Armonk, N.Y.: M.E. Sharpe, 1995), 93.

<sup>18</sup> Robert G. Joseph and Ronald Lehman, "U.S. Nuclear Policy in the 21<sup>st</sup> Century," *Strategic Forum*, Institute for National Strategic Studies (INSS), National Defense University (NDU), no. 145, August 1998, 2.

<sup>19</sup> Miller, 90.

<sup>20</sup> Konstantin E. Sorokin, "The Nuclear Strategy Debate," *Orbis* 38, no. 1 (Winter 1994), 24.

<sup>21</sup> Woolf, 2, 4.

<sup>22</sup> Andrew Duncan, "Russian Forces in Decline—Part 5," *Jane's Intelligence Review* 9, no. 1 (January 1997), 16.

<sup>23</sup> Anton Surikov, "Some Aspects of Russian Armed Forces Reform," *European Security* 6, no. 3 (Autumn 1997), 50.

<sup>24</sup> Hoffman, "Downsizing a Mighty Arsenal.,"; Woolf, 6; Sorokin, 24.

<sup>25</sup> Woolf, 6.

<sup>26</sup> James F. McIlmail and James L. Jaworski, "The Russian Military in the Year 2000," (master's thesis, Naval Post-Graduate School, 1992), 97.

<sup>27</sup> Wilkening, 90.

<sup>28</sup> Charles L. Glaser, "The Flawed Case for Nuclear Disarmament," *Survival* 40, no. 1 (Spring 1998), 125.

<sup>29</sup> Nikolai Sokov, "Russia's Approach to Nuclear Weapons," *The Washington Quarterly* 20, no. 3 (Summer 1997), 108.

<sup>30</sup> Sir Michael Quinlan, "The Future of Nuclear Weapons in World Affairs," *The Washington Quarterly* 20, no. 3 (Summer 1997), 138.

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

<sup>32</sup> Schell, 48.

<sup>33</sup> Sorokin, 24.

## Chapter 5

### The Triad of 2010

Before postulating what the Russian strategic nuclear triad will look like in 2010, it is important to remember the major role the various Strategic Arms Reduction Talks (START) agreements play with regard to this issue. Although the emphasis of this study is not on the START treaties, it is important to be generally familiar with the provisions of these international strategic arms control agreements, realizing that it is compliance with these treaty limits as well as economic feasibility and political will that may well determine the size of the Russian nuclear triad in the future. Thus, prior to hypothesizing the size of the future triad, we need to review briefly START I, II, and III and consider their impact on the triad.

The Strategic Arms Reduction Talks (START ) I agreement was signed in Moscow on 31 July 1991. Generally speaking, this agreement limits US and Russian strategic forces to no more than (NMT) 1,600 “delivery vehicles” with NMT 6,000 “countable” warheads, of which NMT 4,900 can be on ICBM and SLBM, and NMT 1,100 on mobile ICBM. Also according to this agreement, Russia is limited to 154 “heavy,” that is SS-18, ICBM. Over and above the 6,000-warhead limit, each side is allowed to have NMT 880 ALCM with ranges of over 600 kilometers (approximately 375 miles).<sup>1</sup>

On 16 June 1992, the United States and the new Russian republic signed a subsequent agreement, which ultimately became START II. This document stipulated reductions within 7 years after the implementation of the treaty to between 3,800 and 4,250 warheads in each country's strategic arsenal. Of this total number, NMT 1,200 warheads were to be on multiple-warhead ICBM and NMT 650 were to be "heavy" ICBM warheads. By stage two of this agreement (2003), all multiple-warhead ICBM were to be removed from the respective forces, save NMT 1,750 SLBM, which could still carry multiple warheads. Also as of 2003, the total number of strategic warheads in each country's inventory was to be NMT 3,000 to 3,500 and, for the first time ever, bomber warheads would be tabulated according to how many were actually carried on the bomber vice a previous counting rule of attributing each bomber with only one warhead. Much of the uncertainty which surrounds the debate over the size of the future Russian triad is explained by the fact that while the US Senate ratified START II on 26 January 1996, the State Duma, the lower house of the Russian legislature, has yet to do so.<sup>2</sup> When (or if) START II is ratified by the Duma, Russia and the United States would then move to implement the START III agreement, signed by Presidents Yeltsin and Clinton on 21 March 1997. According to this agreement, each side would reduce their nuclear warhead inventory to approximately 2,000 warheads by 2007.<sup>3</sup>

Thus, taking into account the START II and III provisions and realizing they may or may not apply, what will the future Russian strategic nuclear triad look like? Looking first at the crown jewel in the Russian strategic offense diadem, virtually all observers agree that the future Russian ICBM force will be smaller, but the question is, how much smaller? In July 1998, when Yeltsin met with his security council to discuss the future

size and shape of the triad, the council decided to maintain the triad until 2010 and to reduce the ICBM and bomber force in favor of the submarine force, which would be augmented. Thus, it is not surprising that Russian officials would like to have only the SS-27 in the future ICBM force, although even if the government plans to acquire ten of these missiles per year in 1999 and 2000 and then produce 31 more each year thereafter, that would still mean only 359 missiles in Russia's ICBM force of 2010, since by then all the other ICBM would be past their retirement dates.<sup>4</sup> After taking into account Russia's constrained military budget, shorter service lives of weapons, and the impact of START II and III, another observer has concluded that Russia might have only 400 ICBM (SS-19, SS-25, and SS-27) by the end of 2003.<sup>5</sup> Using 2008 as a benchmark, the author of a February 1998 study postulated that Russia's total ICBM force would decline from 801 ICBM and 3,635 warheads (January 1998) to either 413 ICBM and 2,215 warheads by January 2008 if START II is not ratified by the Duma or 260 ICBM with 260 warheads by that date if START II is ratified.<sup>6</sup> A Russian nuclear weapons authority has said that if the Russian military actually begins receiving the 5 to 5.5 percent of the GNP it needs, the ICBM force by 2006-2007 might consist of 105 SS-19, 450 to 630 mobile SS-27, and 90 silo-based ICBM.<sup>7</sup> Finally, in concert with Russian plans that the future ICBM force will be composed solely of SS-27 ICBM, a recent US study concurs, noting the assumption that all SS-19 will be retired by 2009 and that all SS-25 ICBM will be out of the force by the following year. After sifting through the various production and deployment options available, this same writer concludes that Russia is likely to have a 400-missile ICBM force by 2010, composed of 195 silo-based SS-27 and 205 road-mobile systems.<sup>8</sup> Thus, even in a best-case scenario, assuming adequate funding, it

appears likely that by 2010, Russia will have an ICBM force of less than 500 ICBM, all SS-27, meaning a smaller, but more modern, more capable leg. If START II and III are ratified, this number could be cut in half.

Turning to the future submarine force, the combination of treaty obligations and the announced wishes of Yeltsin and the Russian Security Council mean that the future bulk of the Russian strategic nuclear triad will be underwater rather than underground. However, as has been noted, this change will occur not through augmentation of the submarine force, but rather through more gradual reductions than those faced by the other two legs of the triad. In this regard, the consensus opinion is that Russia's future submarine force will consist only of Delta IV, Typhoon, and assuming all the problems can be worked out, *Borey*-class boats.<sup>9</sup> Looking at specific numbers, as far back as September 1995, Rear Admiral Aleksey Ovcharenko, deputy chief, main naval staff operations, estimated that Russia would have no more than 15 SSBN by 2003. In the admiral's estimation, such a force would be sufficient beyond 2003, assuming these are *Borey*-class boats.<sup>10</sup> The US Navy Office of Naval Intelligence (ONI) estimates the future Russian SSBN force to be more on the order of 10 to 12 boats. Whether it is 10 boats or 15, it is certain that to stay beneath the START II limit of 1,750 warheads on SSBN, Russia could not have any more than 20 such boats. A similar figure is suggested by Admiral Oleg Yerofeyev, commander of the Northern Fleet, who believes 13 to 16 SSBN would be necessary for strategic deterrence given the START II limits. An early 1997 study determined a low-high range for numbers of SSBN in 2000, 2003, and 2005. According to this study, Russia could have 16 to 19 SSBN (6 to 8 Delta III, 7 Delta IV, and 3 to 4 Typhoon) by 2000; by 2003 the numbers would be 14 to 19 SSBN (5 to 7

Delta III, 7 Delta IV, and 2 to 4 Typhoon, and perhaps 1 *Borey*-class boat); and by 2005, the estimate is 1 to 5 Delta III, 7 Delta IV, 0 to 4 Typhoon, and 1 to 3 *Borey*-class boats.<sup>11</sup> Averaging these figures yields a likely force in 2005 of 14 boats—3 Delta III, 7 Delta IV, 2 Typhoon, and 2 *Borey*-class. Other studies have yielded similar results—one posits that the force in 2006-2007 will be composed of 12 to 15 SSBN with 1,000 to 1,200 warheads,<sup>12</sup> another that the force will consist of 10 SSBN (5 Delta IV, 3 Typhoon, and 2 *Borey*-class) with 164 missiles and 1,016 warheads.<sup>13</sup> A more-recent ONI estimate is interesting because while it suggests a 14-boat force in the future, as do other estimates, it anticipates that 8 of these will be the new, *Borey*-class boats.<sup>14</sup> Thus, estimates of a 10 to 15-boat fleet of SSBN appear justified, though whether or not that will include any Delta III boats (or *any* Delta boats, for that matter), how many Typhoons, and how many *Borey*-class boats (assuming problems with the platform and the projected new missile can be overcome) is a subject for continuing study, discussion, and observation.

And what of Russia's strategic bomber force? Will it actually disappear in the near future? In a February 1998 conference paper, one authority stated that while Russia's strategic bomber force is actually only a token force with no distinct strategic mission, Russia will maintain the force, in one form or another, and that there are no current plans to abolish it.<sup>15</sup> A Russian writer, assuming that the future strategic bomber force will consist of only Tu-160 "Blackjack" bombers, concludes that with sufficient funding, the air arm of the triad would consist of approximately 10 to 20 Blackjacks with 200 to 450 ALCM.<sup>16</sup> A recent article is less pessimistic and more futuristic, claiming that the bomber force, ironically the only leg of the triad that will not be largely obsolete by 2005, will consist from 2005 to 2015 of 64 bombers (presumably all Tu-95 "Bear H")

with 734 warheads. By 2020, the article continues, this number will decline to 24 bombers with 223 warheads.<sup>17</sup> Perhaps the greatest stock, however, should be placed on the pronouncements emanating from the July 1998 Russian Security Council meeting, which announced it had decided to retain the diminutive strategic bomber force, but to downsize it further, modernize the Blackjacks and the few Bears that will constitute the force, and to equip them with improved missiles.<sup>18</sup> Thus, it appears that an even smaller, though modernized, strategic bomber force will be maintained, at least for the immediate future.

### Notes

<sup>1</sup> Andrew Duncan, "Russian Forces in Decline—Part 5," *Jane's Intelligence Review* 9, no. 1 (January 1997), 14. "Delivery vehicles" is simply a euphemism for ballistic or cruise missiles.

<sup>2</sup> Ibid. The fate of the START II agreement, languishing in the Duma for over 2 years, is still uncertain. Several Russian insiders have said essentially that the Duma will never agree to ratify START II because of the perception that it places Russia at a strategic advantage, compelling her to divest herself of extant systems and then build new systems she cannot afford, simply in order to be treaty-compliant. Other Russian observers have said that the Duma eventually will ratify the agreement, but not until substantive changes are made which will not discriminate against Russia. Despite SRF chief Yakovlev's statement that there really is 'no alternative to ratification of START II,' that is a minority opinion not shared by many Russian legislators who appear almost eager to find new reasons to oppose the agreement. Thus, how much longer the delay will continue is an open question. For more information on the internal Russian conflict over START II ratification, see "Commander Reports on the State of the Strategic Rocket Forces," *The Monitor*, 20 February 1998, n.p.; on-line, Internet, available from [www.jamestown.org/pubs/view/mon/004/035\\_006.htm](http://www.jamestown.org/pubs/view/mon/004/035_006.htm); and Alan Geyer, "NATO Expansion: Dividing the House of Europe," *Christian Century*, 4-11 June 1997, 566.

<sup>3</sup> Bruce G. Blair, Harold A. Feiveson, and Frank N. von Hippel, "Taking Nuclear Weapons Off Hair-Trigger Alert," *Scientific American*, November 1997, 79; Jacquelyn K. Davis et al., "The Looming Alliance Debate Over Nuclear Weapons," *Joint Forces Quarterly*, Spring 1997, 81.

<sup>4</sup> "Government Endorses Strategic Nuclear Triad, But..." *The Monitor*, 8 July 1998, n.p.; on-line, Internet, 25 September 1998, available from [www.jamestown.org/pubs/view/mon\\_004\\_130\\_001.htm](http://www.jamestown.org/pubs/view/mon_004_130_001.htm).



## Notes

<sup>5</sup> Robert S. Norris and William M. Arkin, "Russian Strategic Nuclear Forces, End of 1997," NRDC Notebook, *The Bulletin of the Atomic Scientists* 54, no. 2 (March/April 1998), 70.

<sup>6</sup> Paul Podvig, "The Russian Strategic Forces: Uncertain Future," on-line, Internet, 17 August 1998, available from <http://blue.iris.mipt.ru/lat/transforming/podvig.htm>. Assuming START II and the accompanying protocol which extended the implementation date are approved and START III is then implemented, January 2008 is the target date for both of these milestones, hence Podvig's use of this date as a benchmark.

<sup>7</sup> Anton Surikov, "Some Aspects of Russian Armed Forces Reform," *European Security* 6, no. 3 (Autumn 1997), 59.

<sup>8</sup> Dean A. Wilkening, "The Future of Russia's Strategic Nuclear Force," *Survival* 40, no. 3 (Autumn 1998), 93.

<sup>9</sup> "Government Endorses Strategic Nuclear Triad, But...."

<sup>10</sup> Joshua Handler, "Russia Ready for START III," *The Bulletin of the Atomic Scientists*, January/February 1996, 12.

<sup>11</sup> Joshua Handler, "Russia Seeks to Refloat a Decaying Fleet," *Jane's International Defense Review* 1/1997, 44-45, 47.

<sup>12</sup> Surikov, 59.

<sup>13</sup> Podvig, "The Russian Strategic Forces: Uncertain Future."

<sup>14</sup> Wilkening, 98.

<sup>15</sup> Podvig, "The Russian Strategic Forces: Uncertain Future."

<sup>16</sup> Surikov, 59.

<sup>17</sup> Wilkening, 100.

<sup>18</sup> "Government Endorses Nuclear Triad, But...."

## **Chapter 6**

### **Conclusion**

Will the Russian strategic nuclear triad continue to exist and, if so, in what form? As this study has demonstrated, the answer to the first question is an apparent affirmative. With regard to the second question, each leg of the Russian strategic nuclear triad will undergo moderate change and will be smaller, though more modern and still lethal. Also, the future force will be most dependent upon the seaborne leg, the SSBN. Furthermore, the future of the triad is inextricably bound up with the START II and follow-on START III arms control agreements. We now realize as well how critical the triad is to Russia, not only physically but also psychologically, as reflected in Russia's current "launch on warning" strategy. The reasons she might give up her nuclear offensive forces are many and logically compelling, but are outnumbered by the image and strategic reasons she will keep them. Russia's leaders are absolutely convinced that the country's very existence depends upon the continuation of the triad; thus, Russia will do whatever it takes to ensure the survival of the strategic nuclear deterrent. Therefore, whether Russia can afford to maintain the triad is an irrelevant question. At heart, the issue is nothing less than her sovereignty, threatened numerous times by various would-be conquerors over 1000 years of existence. It will be interesting to observe how well she accomplishes her task.

## Appendix A

### Major Russian Strategic Weapons

#### **ICBM**

##### SS-18

NATO designation: Satan

Number of warheads: Versions carry 1, 8, or 10 warheads each

IOC (Initial Operational Capability): 1974

Deployment: Silo-launched

Average service life: 15 years (estimated)

Modifications: Six since 1975

Comments: Russia's only "heavy" ICBM; built in Ukraine, means either deploying currently mothballed missiles or using non-deployed missiles for spare parts in order to sustain force.<sup>1</sup>

##### SS-19

NATO designation: Stiletto

Number of warheads: Versions carry either 1 or 6 warheads each

IOC: 1975

Deployment: Silo-launched

Average service life: 15 years (estimated)

Modifications: Mod 1 (6 warheads), 1975

Mod 2 (1 warhead), 1977

Mod 3 (6 warheads), 1980

Comments: Built in Russia<sup>2</sup>

##### SS-24

NATO designation: Scalpel

Number of warheads: 10 (all versions)

IOC: 1987

Deployment: Silo-launched; rail-mobile

Average service life: 15 years (estimated)

Modifications: N/A

Comments: Designed and built in Ukraine; since 1992, all rail-mobile SS-24 stationed in garrisons; production ceased in 1995, due in part to apparent safety problems, may be retired early, possibly 2000.<sup>3</sup>

### SS-25

NATO designation: Sickle  
Number of warheads: 1 (all versions)  
IOC: 1985  
Deployment: road-mobile  
Average service life: 15 years (estimated)  
Modifications: N/A  
Comments: Until very recently, only land-based ICBM in production in Russia; production run has ended because SS-27 follow-on produced at same location, Votkinsk Machine-Building Plant.<sup>4</sup>

### SS-27

NATO designation: none as yet, usually referred to in Western press as “Topol-M,” one of Russian designators  
Number of warheads: 1  
IOC: 1997  
Deployment: Silo-launched; road-mobile version under development  
Average service life: 15+ years (estimated)  
Modifications: Basically SS-25 follow-on  
Comments: Silo-launched missiles will be placed in old SS-18 silos; range of 10,500 kilometers; road-mobile version will use SS-25 TEL (Transporter-Erector-Launcher); intended to be only Russian ICBM of future force; SS-27 exploded shortly after takeoff during October 1998 test-firing.<sup>5</sup>

### **SSBN**

#### Delta III

NATO designation (SLBM): Stingray  
Number of missiles carried: 16 SS-N-18  
Number of warheads/missile: 3  
IOC: 1972  
Average service life: 25 to 30 years  
Comments: Fiscal and maintenance problems may prompt their decommissioning in 2002<sup>6</sup>.

#### Delta IV

NATO designation (SLBM): Skiff  
Number of missiles carried: 16 SS-N-23  
Number of warheads/missile: 4  
IOC: 1985  
Average service life: 25 to 30 years  
Comments: Similar to Delta III boats, though newer; last in a series of SSBN to carry more hazardous liquid-fuel missiles.<sup>7</sup>

#### Typhoon

NATO designation (SLBM): Sturgeon  
Number of missiles carried: 20 SS-N-20

Number of warheads/missile: 10

IOC: 1980

Average service life: 16 years (estimated)

Comments: Largest submarines ever built; due to treaty concerns and problems with follow-on missile (SS-NX-28, see below), two Typhoons already decommissioned, their return to fleet doubtful.<sup>8</sup>

#### Borey (Arctic Wind)-class

NATO designation: None, usually referred to as *Borey*-class, or *Yuri Dolgoruki*, after first submarine of new class

Missile carried: SS-NX-28 (tentative)

Number of missiles carried: 12 or 16

Number of warheads/missile: Undetermined, believed to be 4 to 10

IOC: 2004/2005

Average service life: Unknown

Comments: Keel for *Yuri Dolgoruki* laid down December 1996; class also known as “Delta V” due to location of launch tubes behind conning tower, as with Delta III, IV; anticipated launch date for *Yuri Dolgoruki* 2002; intended to be series of seven boats in class, though doubtful Russian Navy can afford them; SS-NX-28 intended to be standard missile for Typhoon and *Borey*-class boats, but missile has failed four tests thus far; controversy over fielding with 12 or 16-missile capability; inability to fund enough boats may prompt Russian Navy to station all SSBN in one port, subordinate to Northern Fleet.<sup>9</sup>

## **Bombers**

### Tu-95

NATO designation: Bear

Missile carried: AS-15A ALCM

Number of missiles carried: 6 (Tu-95MS6); 16 (Tu-95MS16)

IOC: 1984 (MS6 and MS16 variants)

Average service life: 30 years

Comments: Four-engine turboprop aircraft, basic design dates from 1950s; MS6 variant carries 6 ALCM in bomb bay, MS16 variant carries additional 10 ALCM on wing pylons; production line closed in 1995, will not be reopened.<sup>10</sup>

### Tu-160

NATO designation: Blackjack

Missile carried: AS-15B ALCM

Number of missiles carried: 12

IOC: 1987

Average service life: 25 years (estimated)

Comments: Supersonic; largest bomber in the world; reputation for mechanical unreliability; when Soviet Union fell, most Blackjacks in Ukraine, kept by Ukrainians, negotiations for return to Russia have collapsed, Russians no longer want decaying aircraft; believed to be only six in inventory, only two of these operational.<sup>11</sup>

## Notes

<sup>1</sup> Robert S. Norris and William M. Arkin, "Russian Strategic Nuclear Forces, End of 1997," NRDC Nuclear Notebook, *The Bulletin of the Atomic Scientists* 54, no. 2 (March/April 1998), 71; Paul Podvig, "The Russian Strategic Forces: Uncertain Future," on-line, Internet, 17 August 1998, available from <http://blue.iris.mipt.ru/lat/transforming/podvig.htm>; Dean A. Wilkening, "The Future of Russia's Strategic Nuclear Force," *Survival* 40, no. 3 (Autumn 1998): 98.

<sup>2</sup> Norris and Arkin, 71; Wilkening, 93.

<sup>3</sup> Norris and Arkin, 71; Wilkening, 93; Podvig, "The Russian Strategic Forces: Uncertain Future."

<sup>4</sup> Ibid.

<sup>5</sup> David A. Fulghum, "Russian Missile Tests Yield Mixed Results," *Aviation Week and Space Technology*, 19 January 1998, 30; Nikolai Novichkov, "Russia Will Field Topol-M ICBM By End of This Year," *Jane's Defence Weekly*, 16 July 1997, 3; "Russian Ballistic Missile Modernization," *AFIO Intelligence Notes*, Issue 6, 15 February 1998, n.p.; on-line, Internet, 30 June 1998; Podvig, "The Russian Strategic Forces: Uncertain Future"; Article, *Montgomery Advertiser*, 25 October 1998. According to the *Izvestia* article, the cause of the explosion had not yet been determined, though the paper warned that this event could have 'a crucial impact on Russia's defense capability.'

<sup>6</sup> Podvig, "The Russian Strategic Forces: Uncertain Future"; Wilkening, 97.

<sup>7</sup> Norris and Arkin, 71; Podvig, "The Russian Strategic Forces: Uncertain Future"; Wilkening, 97.

<sup>8</sup> Ibid.

<sup>9</sup> Norris and Arkin, 71; Andrew Duncan, "Time of Consolidation for Russia's Military," *Jane's Intelligence Review* 9, no. 10 (October 1997): 456; Fulghum, 30; Gen (retired) Eugene E. Habiger, "Security of the Russian Nukes," *Air Force Magazine*, February 1998, 76; David Hoffman, "Downsizing a Mighty Arsenal: Moscow Rethinks Role as Weapons Rust," *Washington Post*, 16 March 1998, n.p.; on-line, Internet, 30 June 1998, available from <http://www.washingtonpost.com/wp-srv/Wplate/1998-03/16/1031-03169-idx.html>; Wilkening, 97-98; Amy F. Woolf and Kara Wilson, *Russia's Nuclear Forces: Doctrine and Force Structure Issues*, CRS Report (Washington, D.C.: Congressional Research Service, 1997), 14.

<sup>10</sup> Norris and Arkin, 71; Podvig, "The Russian Strategic Forces: Uncertain Future"; Wilkening, 100.

<sup>11</sup> Norris and Arkin, 71; Hoffman, "Downsizing a Mighty Arsenal"; Podvig, "The Russian Strategic Forces: Uncertain Future"; "Russia Will Not Buy Ukrainian Strategic Bombers," BBC News, 25 March 1998, n.p.; on-line, Internet, 30 June 1998, available from [www.news.bbc.co.uk/hi/english/world/europe/newsid\\_69000/69676.stm](http://www.news.bbc.co.uk/hi/english/world/europe/newsid_69000/69676.stm); "Russian Air Force to Get New Blackjack Strategic Bombers," *The Monitor*, 29 October 1997, n.p.; on-line, Internet, 18 September 1998, available from [www.jamestown.org/pubs/view/mon\\_003\\_202\\_000.htm](http://www.jamestown.org/pubs/view/mon_003_202_000.htm); "Ukraine to Scrap Ex-Soviet Bombers," *The Monitor*, 24 April 1998, n.p.; on-line, Internet, 18 September 1998, available from [www.jamestown.org/pubs/view/mon/004/079\\_004.htm](http://www.jamestown.org/pubs/view/mon/004/079_004.htm).

## *Glossary*

ALCM—air-launched cruise missile

GNP—Gross National Product

ICBM—intercontinental ballistic missile

MIRV—multiple independently-targeted re-entry vehicles

NMT—no more than

SRF—Strategic Rocket Forces

SSBN—strategic ballistic missile submarine

START—Strategic Arms Reduction Talks

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