

## *Book Review*

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# *Russian Strategic Nuclear Forces*, edited by Pavel Podvig (MIT Press, 2001)

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REVIEWED BY NIKOLAI SOKOV

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The English translation of the now classic volume *Strategicheskoe Yadernoe Vooruzhenie Rossii*<sup>1</sup> was in the works for several years, but now international experts who do not read Russian can fully utilize this unique volume, with its massive and detailed information about the backbone of Soviet and Russian security policy—strategic nuclear weapons. The English edition, published by MIT Press, is updated to include data and developments through the end of 2000 (the Russian edition was current as of 1997). Many of the authors who collectively wrote this volume work at the Moscow Physics and Technological Institute, one of the most authoritative disarmament research centers in Moscow. The remaining contributors are based at other leading Russian analytical centers.

During the 1990s, a string of publications in Russia took advantage of the new political atmosphere to open the previously tightly sealed history of the Soviet strategic nuclear program.<sup>2</sup> These publications also used this data to analyze the current structure of the Russian strategic forces. *Russian Strategic Nuclear Forces*, a veritable encyclopedia of the Russian nuclear and missile complex, represented the crowning achievement of that period. Compared to other existing publications in this field, the volume edited by Pavel Podvig has several important advantages which set it apart.

The majority of other books on this subject cover isolated areas of the Russian strategic forces—such as intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), or nuclear weapons testing. In contrast, *Russian Strategic Nuclear Forces* addresses all aspects of the Russian strategic arsenal—from the development of warheads and delivery vehicles to the operations of strategic forces as a whole and each leg of the triad (land-, sea-, and air-based forces) separately, as well as nuclear testing. By covering such a broad range of material, it provides an unusually comprehensive picture of the Soviet and later Russian strategic arsenal, allowing deeper insights into and prediction of future developments in the Russian strategic posture.

Also, many other Russian publications in this field are influenced by parochial agendas: some were published by former missile or weapons designers and are skewed in favor of the systems produced by their firm. A number of valuable and informative volumes were produced by the Russian defense industry and these have a promotional character (although, of course, Russia is prohibited by international agreements from selling long-range missiles or nuclear weapons).<sup>3</sup> Unlike these volumes, *Russian Strategic Nuclear Forces* is an independent analytical work, which strives to objectively analyze the facts and

compare various views and assessments. As a result, this comprehensive volume allows researchers who use it to skip the stage of bringing together and analyzing thousands of individual pieces of data.

Careful analysis by Russian experts with background in engineering, physics and disarmament allowed them to sort facts from rumor and trace causal relationship between pieces of data which heretofore have only been available piecemeal; they were also able to separate reliable facts from inaccurate data and rumor. In this regard, the *Podvig* volume is more than a mere compilation of facts and data that could be found elsewhere, if the reader had time to do his or her own data collection. *Russian Strategic Nuclear Forces* also contains excellent analysis. Indeed, the final product is of such quality, that as Frank von Hippel of Princeton University notes in the foreword, the Russian Federal Security Service (FSB) suspected that the volume contained classified information.

Among the many outstanding features of *Russian Strategic Nuclear Forces*, two deserve particular mention: (1) the tracing of long-term trends in Soviet nuclear weapons and delivery systems development; and (2) an analysis of the Russian decisionmaking process regarding weapons modernization. These two subjects remain, even today, often misunderstood or misinterpreted in the West—a legacy of the complete absence of reliable information about such matters from inside the Soviet Union during the Cold War. The in-depth look provided by this volume demonstrates that Soviet nuclear weapons modernization programs were often motivated by technical and bureaucratic considerations. The portrait that emerges is far different than the stereotypical picture of a smooth and perfectly rational process that dominated Western literature on Soviet strategic nuclear weapons development two or three decades ago. Forced to rely on very limited data, Western analysts during the Cold War era had to assume rationality behind the technological innovation and deployment patterns that they were able to observe. In fact, a very complex and contradictory decisionmaking mechanism, coupled with intense competition among weapons designers and producers—competition that often was resolved through logrolling instead of rational choice—produced an arsenal that did not match the criteria of deterrence (with primary reliance on launch-on-warning and a preference for an eventual transition toward a more stabilizing, second-strike posture), that was the official guidance for the Soviet military. Instead, the So-

viet nuclear posture acquired features that led many Western analysts conclude that the Soviet Union was preparing for a first strike.<sup>4</sup> One shortcoming of the *Podvig* volume, however, is that its style—it is written as a reference work—does not allow the authors to examine in detail the political intrigue that surrounded many Soviet-era strategic nuclear modernization decisions. Political and bureaucratic maneuvering produced, in many instances, decisions that were not consistent with strict criteria of military and economic rationality. This issue has not yet been sufficiently researched in either Russia or the West, and is still awaiting the attention of historians and military analysts.

From the standpoint of contemporary concerns, a detailed analysis of historical trends in Soviet and Russian strategic force development and the associated production infrastructure can shed light on the much-debated topic of possible Russian response to American missile defense programs. For example, the possibility of a massive modernization of Russian strategic forces and the deployment of substantial numbers of new strategic offensive weapons along the lines of “asymmetric response” was much touted by Russian military officials and many Western analysts. Political rhetoric, the hopes of the Russian military, and the expectations of Western Russia-watchers are one thing, however, while actual possibilities, as reflected in real Russian capabilities, are quite another.

The authors of *Russian Strategic Nuclear Forces* provide a balanced assessment of what is “doable” for Russia, both in terms of deployment of new weapons and retention of old weapons. In so doing, the volume strips away much of the pretense and speculation that surrounds the possible “Russian response” to U.S. ballistic missile defense programs. According to the analysis by *Podvig* and his colleagues, assuming that START II does not enter into force—obviating the need for elimination of ICBMs with multiple independently targetable reentry vehicles (MIRVs) as required by that treaty—Russia might keep as many as 3,500 warheads on strategic delivery vehicles until 2007-2010 if it continues to extend the service lives of Soviet-built missiles. The United States, however, would be constrained only by START I rules, which allow more than 6,000 warheads.

After 2007, however, the size of the Russian arsenal will fall sharply.<sup>5</sup> All in all, by 2010, Russia is likely to have only around 1,000 strategic warheads—about one-third less than the current plan stipulates. According to

the analysis in *Russian Strategic Nuclear Forces*, no combination of measures, including installing multiple warheads on the Topol-M missiles now entering service, can significantly increase that number.<sup>6</sup> In fact, a series of decisions made by the Russian Security Council in 2000-2001 (these were not addressed by the volume, since they were mostly made after the book went to print) project an even earlier retirement of Soviet-built land- and sea-based missiles, meaning that the level of 1,000 or slightly more might be reached even earlier than 2010. In other words, much-touted promises of a large-scale asymmetric response to U.S. missile defense programs do not look very credible when one considers the realistic technological and production capabilities of the Russian defense industry.

Similarly, the analysis presented by Podvig and his colleagues paints a picture of a reduced and still dwindling nuclear weapons production complex, in which the key concerns are storage of fissile materials removed from dismantled warheads and maintenance (replacement of components and reassembly) of the existing, rapidly shrinking stockpile of operational nuclear warheads. An objective picture of the latter element of the Russian strategic weapons complex is particularly interesting in light of the decision of the Bush administration, announced as part of the January 2002 Nuclear Posture Review, to stockpile U.S. warheads removed from operational deployment in storage, rather than dismantling them. This decision has been justified in part by the potential for large-scale production of nuclear warheads in Russia, which could supposedly support a substantial and rapid expansion of the Russian nuclear warhead stockpile. A careful analysis, however, as conducted in *Russian Strategic Nuclear Forces*, demonstrates that the Russian capability in this regard has shrunk considerably from what it used to be in the Soviet period and continues to shrink. There may be other serious reasons for the United States to preserve a significant capability to rapidly reconstitute a larger strategic nuclear force, but the threat posed by the capabili-

ties of the Russian nuclear weapons complex is probably not one of them.

All in all, the long-awaited translation of this book, which was recognized as an invaluable resource even in its first, Russian-language edition, provides a wealth of knowledge and an irreplaceable tool for Western researchers. It would not be an overstatement to say that no study of any aspect of the Russian nuclear posture can be complete if it does not use *Russian Strategic Nuclear Weapons* as part of its source material.

<sup>1</sup> Pavel Podvig, ed., *Strategicheskoe Yadernoe Vooruzhenie Rossii* [Russian Strategic Nuclear Forces] (Moscow: Izdat, 1998)

<sup>2</sup> See, for example: Sergei Kolesnikov, *Strategicheskoe Raketo-Yadernoe Oruzhie* [Strategic Nuclear Missile-nuclear Weapons] (Moscow: Armeiskii Sbornik, Ministry of Defense of the Russian Federation, 1996); Alexander Pikayev, ed., *Raketnaya Moshch Rossii: Proshloe i Nastoyashchee* [The Missile Might of Russia: Past and Future], (Moscow: Komitet po Kriticheskim Tekhnologiyam i Nerasprostraneniuyu and Monterey Institute of International Studies, 1996); Karpenko, et. al, *Otechestvennye Strategicheskie Raketnye Kompleksy* [Domestic Strategic Missile Complexes] (St. Petersburg: Nevski Bastion, 1999); Mikhail Pervov, *Mezhkontinentalnye Ballisticheskie Rakety SSSR i Rossii* [The Intercontinental Ballistic Missiles of the USSR and Russia] (Moscow: 1998); Yevgeniy Volkov, et. al, *Mezhkontinentalnye Ballisticheskie Rakety SSSR (RF) i SShA* [Intercontinental ballistic missiles of the USSR [RF] and the United States] (Moscow: Raketnye Voiska Strategicheskogo Naznacheniya – SRF, 1996).

<sup>3</sup> One of the best-known catalogues of Russian strategic weapons is *Russia's Arms: a Catalogue*, vol. 6, (Moscow: Military Parade, 1996-97).

<sup>4</sup> The most glaring examples are: (1) excessive concentration of warheads on delivery vehicles (especially heavily MIRVed ICBMs), which resulted in considerable vulnerability of Soviet ICBMs to a hypothetical U.S. first strike, thus making it appear to Western analysts that the Soviet Union intended to strike first; and (2) the reluctance or failures of the defense industry to develop mobile ICBMs (several attempts in the 1960s and early 1970s did not succeed or were only half-hearted). This failure led the Soviet Minister of Defense in the 1970s, Dmitri Ustinov, to solicit for this project a design bureau that had not previously worked in the ICBM field. This bureau, the Moscow Institute of Thermotechnics (MITT), finally produced the first Soviet mobile ICBM, *Temp-2S*, as well as the better-known Topol (SS-25) and Topol-M (SS-27). For details of the history of Soviet strategic programs see Nikolai Sokov, *Russian Strategic Modernization: The Past and Future* (New York: Rowman & Littlefield, 2000).

<sup>5</sup> Podvig, et.al, *Russian Strategic Nuclear Forces* (Cambridge: MIT Press, 2001), pp. 30-31.

<sup>6</sup> *Ibid.*, p. 579.