MR Almanac

Revolution in Military Affairs—A History
by Robert R. Tomes

In the late 1950s and early 1960s Soviet military analysts routinely predicted a nuclear “revolution in military affairs” (RMA). Author Joseph Douglass’s review of Soviet military thought found that such an RMA “had become an accepted precept” among Soviet military theorists by the early 1960s. A nuclear RMA was more than merely the development of nuclear forces. Beginning in the late 1960s, widespread innovations in Soviet operational art and force structure occurred, which included the development of large armored formations and sweeping changes in operational doctrine. The Soviets’ changes led to United States (US) and NATO innovations, including the US Army’s adoption of an “active defense” doctrine. The Soviets responded with increased conventional capabilities and doctrinal innovations such as multiple attacks on broad axes to confuse NATO mobile reserves. These and other changes reduced NATO options for defeating a Soviet thrust into NATO territory, leaving a rapid escalation to nuclear-weapons use as the only effective response.

Soviet changes prompted internal US Army discussions that in 1982 became AirLand Battle doctrine. The same Soviet developments led to shifts in the balance of conventional forces in Europe and the development of technologically superior...
weapon systems showcased during the 1991 Persian Gulf War.

The United States leveraged technology to counter Soviet force-structure innovations and create a force-multiplier effect. The United States sought to make existing weapon systems more effective in countering any Soviet threat. Indeed, these technologically advanced weapon systems were "largely conceived and developed during the 1970's... in response to the then-perceived threat of an armored assault by the Warsaw Pact forces in central Europe."

During the Cold War, a causal relationship existed between Soviet responses to a perceived nuclear RMA and the US search for technologically superior conventional weapons to offset Soviet responses. These have not received the attention they deserve in discussions of US RMA.

Doctrinal and technological innovations included:

- The evolution of AirLand Battle doctrine.
- NATO's adoption of a follow-on forces attack (FOFA) doctrine.
- The Defense Advanced Research Project Agency's (DARPA) "assault-breaker" initiative.
- Congressional directives to streamline the development of advanced conventional forces to raise the nuclear threshold.
- The creation of a Conventional Initiatives Office headed by an undersecretary of defense.

These sequential innovations energized the development of precision-strike technology and advances in command, control, communications and intelligence (C3I) systems central to post-Cold War US RMA. Thus, the term RMA currently applied to US military technology is an outgrowth of a Soviet-US action-reaction arms dynamic that had specific phases or steps. Beginning with Soviet observations of changes in warfare wrought by the advent of nuclear weapons, culminating with US doctrinal and technological responses to a shifting European military balance, these phases trace the historical, conceptual and operational history of US RMA.

Early Soviet RMA

The Soviet RMA of the early 1960s encompassed "[the] rapid development and mass introduction of nuclear weapons, missiles and radio electronic means among the troops as well as the significant improvement of other types of armament and combat equipment [that] led to fundamental changes in the nature and methods of military actions and to a genuine revolution in military affairs." Soviet observers saw RMA as more than the invention and introduction of nuclear weapons; they viewed it as a process whereby advances in deliverable vehicles and launch methods would spark the "[i]ntroduction of new weapons in all categories of the armed forces. These weapons produced a complete revolution in military affairs, introduced radical changes in the methods of conducting warfare and made necessary a review of the established principles of the art of war." 10

Initial Soviet thinking on nuclear RMA is recorded in a "special collection"—a series of papers passed to the West by British-directed spy Oleg Penkovsky. Written in 1958, the papers discuss "the impact of nuclear-tipped rockets on military science." The Strategic Rocket Forces were formed a year later, and in 1960 Soviet President Nikita Khrushchev announced a new military philosophy. He concluded that "nuclear weapons made huge infantry and tank armies redundant" and that along with other changes, "[t]he size of the army would be slashed." 11

Soviet nuclear RMA writings, many of which underscore current US RMA discussions, addressed the effects of:

- The widening battlefield.
- The expanding tactical, operational and strategic levels of warfare.
- The need to conduct operations of greater depth and audacity, including the need to rapidly penetrate and destroy rear-echelon enemy command and control (C3) facilities.
- A general increase in the dynamism of combat operations.

On the battlefield, these changes led to the following adaptations:

- The need to mass nuclear strikes rather than assemble masses of conventional forces.
- The need to strike deep into enemy territory in the opening exchange of a battle or war.
- The importance of simultaneous action on the enemy throughout the entire depth of his deployment.
- An increasing emphasis on electronic gear, which included C3 equipment, logistics management and other electronic systems needed to manage an expanded battlefield. 10

The Race is to the Swift

Political writer Richard Simpkin outlines four phases of Soviet deep-operation theory that occurred in direct response to the revolutionary impact of nuclear weapons. During the first phase, from the late 1950s through the mid-1960s, the chief planning assumption held that nuclear weapons would be central to any military conflict with NATO.

Planners envisioned operations in which enormous tank formations would roll through areas after they had been "prepared" with nuclear and chemical attacks. Contrary to traditional Soviet views, operational maneuver during this period was not a primary feature in tank operations, because nuclear weapons would obliterate enemy forces. Conventional forces were reduced to mopping up after a nuclear exchange.

Soviet RMA further evolved in 1967 with Operation Dnieper, a river-crossing exercise that typified advances in Soviet military doctrine. Previously, doctrine had assumed that conventional operations would coincide with or immediately follow nuclear-weapon use. Now, conventional operations would be followed by a nuclear exchange, which NATO would initiate, followed by a Soviet second strike.

Nuclear RMA precepts continued to dominate Soviet operational planning during phase two. Increased Soviet attention to conventional forces did not mean nuclear weapons were less important to the outcome of battle. They saw ground forces as, in the end, what would be used to implement Soviet offensive strategy. 12

The second phase in Soviet deep-operations theory coincided with the introduction of the BMP-1 infantry fighting vehicle, the first post-World War II mass-produced armored vehicle. Designed to speed infantry forces into battle along with armor and self-propelled artillery, the BMP would enable rapid penetrations into NATO territory before employing tactical nuclear forces. Essentially, the Soviets adapted their version of RMA to the exigencies of an all-out,
conventional European war that would rapidly escalate to a nuclear exchange.

By the end of the 1960s, non-nuclear operations received significant attention. Writer Robert A. Doughty characterizes the shift in thinking: Soviet "leaders believed that the revolution in military affairs compelled complete revisions in strategy, tactics and force structure. As part of these revisions, the Soviets [further] modified their thinking about the conduct of ground operations in the nuclear age and emphasized dispersion, mobility, high operating tempos and multiple attacks on broad axes."

Analyst David Glantz describes the RMA-induced changes in Soviet operational art: "The projection of nuclear firepower onto the battlefield spelled an end to dense combat formations, tight multiple echelons and contiguous defenses arrayed in great depth. Nuclear weapons fragmented combat and forced potential combatants to disperse their forces and resort to mobility and speed to achieve operational and tactical success."

As these Soviet revisions in operational art played themselves out in force-structure decisions, the US responded with research and development initiatives that culminated in advances in precision-strike, C4I technology and technology to promote US air power. Changes in Soviet military thought and force structure adaptations led, in the late 1970s and early 1980s, to the refinement and adoption of an AirLand Battle doctrine. At the time, NATO doctrine for preventing a Soviet breakthrough into NATO territory envisioned trying to halt any Soviet penetration while using nuclear weapons to destroy and disrupt Soviet forces reinforcing the penetration.

During the early 1980s, US technological innovation accelerated after phase three of Simpkin's overview of Soviet deep operations theory—the introduction of the operational maneuver group (OMG). Between the second and third phases, Soviet military theorists invigorated their revision of operational art and introduced the concept of a "theater-strategic offensive."

Doctrinally, the OMG encompassed an independent maneuver element, perhaps a reinforced division, which would break through a weak spot in enemy lines to drive as far into enemy territory as possible. The OMG, having achieved a penetration, would be followed by larger, echeloned armor formations that, once the breakthrough occurred, would hit NATO forces with successive waves of massed armored attacks advancing on multiple axes.

Driving into NATO's operational depth would disrupt command and control, facilitate the seizure of critical terrain such as river-crossing sites and, more important, prevent the enemy from launching a nuclear attack on the OMG. Presumably, this would prevent NATO from using nuclear weapons before Soviet forces secured a foothold in NATO territory. The Soviet conventional buildup in the late 1970s and early 1980s, with innovations in the theory of operational maneuver, altered the military balance in Europe and jeopardized the credibility of NATO's nuclear deterrent.

The fourth phase in Soviet deep operations theory, the heliborne assault brigade, was introduced in the early 1980s as a further means to penetrate rapidly and seize critical terrain in enemy territory or attack enemy C2 facilities. The massive Soviet buildup in conventional arms during the 1970s and 1980s related directly to original Soviet RMA thinking. These original precepts evolved further to extend the underlying tenets of nuclear RMA to all combat arms.

In 1975, Douglass noted: "All arms of the ground forces have undergone stages of profound change in recent decades in the course of the scientific-technical revolution which was caused by the mass introduction of nuclear and missile weapons and the mastering of new types of combat equipment, radio-electronics, automated control systems and means of transport."

**US RMA Arrives**

In the late 1970s and early 1980s, US response to Soviet operational-art innovations and conventional superiority in Europe focused on doctrinal changes and investing in military technology. Partly because of successive doctrinal changes, many key weapon systems were conceived, including the M1 Abrams tank, the Joint Surveillance and Target Attack Radar System (JSTARS), the Apache helicopter, the Bradley infantry fighting vehicle, the Patriot missile and the multiple-launch rocket system.

Significant, technologically advanced weapons, including those emerging from the DARPA assault-breaker initiative, aimed at disrupting the echelons behind the OMG. That is, they were to break the momentum of the echeloned assault by attacking rear echelons as they advanced in march formation toward the front. The intent was to detect, target and attack large armored follow-on forces. The operational theory adopted by NATO, which coincided with the assault-breaker program, was "follow-on forces attack." To champion new military technology, the Department of Defense (DoD) created a conventional-initiatives office.

According to former Secretary of Defense William J. Perry, "it was necessary to give [US] weapons a significant competitive advantage over their opposing counterparts by supporting them on the battlefield with newly developed equipment that multiplied their combat effectiveness."

Current US RMA is linked to the evolution of AirLand Battle doctrine, the technology emerging from the assault-breaker initiative and the efforts of the conventional-initiatives office. In the 1980s, this office sought technological fixes to operational problems that led to precision-strike weapons and cultivated the concept of information superiority, both central to then-current US RMA.

The pantheon of weapon systems the conventional-initiatives office championed included:
- JSTARS.
- The joint tactical fusion program.
- A joint suppression of enemy air defenses program.
- A precision-location strike system.
- A new, integrated air defense system.

At the core of DoD conventional initiatives was a search for means to offset Soviet quantitative advantages with advanced conventional military
technology, thereby creating a conventional deterrent and options to early escalation to nuclear use. At the same time, by striking deep, these weapon systems would carry the fight into Soviet territory early. NATO would have options other than trading space for time or the less attractive option of going nuclear immediately.

These conventional initiatives were galvanized by congressional studies and directives aimed at raising the threshold for nuclear war in Europe. One study pointed out that "these initiatives...provide the capability to engage military targets with conventional weapons that previously could be effectively engaged only with nuclear weapons."

### Military Technological Revolution (MTR)

In the 1980s, Soviet Marshal Nikolai Ogarkov and other observers reasoned that it would soon be possible for advanced conventional arms to produce battlefield effects similar to tactical nuclear weapons. The US conventional-initiatives program had achieved its objective, at least in creating a conventional deterrent to Soviet ground forces. In time, nuclear deterrence scholarship was supplanted with literature exploring the historical and theoretical basis for conventional deterrence.

Ogarkov reformulated the Soviet force structure and pushed for the development of nonnuclear weapons and a more effective mobilization capability, emphasizing speed and mobility. The idea that the NATO nuclear forces' C3 could be disabled fell from favor as nuclear arsenals were hardened and diversified. Ogarkov believed no first strike could eliminate the potential for massive retaliation. In addition, Ogarkov believed a further fundamental change had occurred in military affairs. New technology made "it possible to increase sharply, by at least ten times, the strike potential of conventional weapons."

Such a situation rubbed against a Soviet doctrinal emphasis on echeloning masses of tanks and armored vehicles. In 1984 Ogarkov was demoted to a regional command position because of his outspoken nature and repeated attempts to increase Soviet defense spending to develop conventional forces.

Soviet military writings of the period emphasize the coming conventional US military technical revolution. Changes in warfare previously discussed in the context of a Soviet nuclear RMA were now associated with a US conventional MTR. These changes included the blurring of the distinction between front and rear, the ability to achieve objectives more quickly, the need for organizational change reflecting changes in warfare and an increased capability for surprise. Emphasis was on audacity in the opening stages of war and the need to address compressed decision cycles for operational maneuvers.

In time, Soviet observers considered developments in conventional armaments a new RMA replicating the undercurrents of the previous one. Indeed, a former Soviet chief of staff remarked that Operation Desert Storm was an ideal version of a Soviet theater-strategic offensive. In Soviet eyes, this amounted to an RMA from the point of view that an evolving nuclear RMA had been in existence for several decades.

In the West, MTR suffered through various definitions. By the end of the 1980s, the term focused on technology. A broader term was needed, hence the resurrection of RMA in scholarly discourse and among Pentagon officials intimately familiar with Soviet military theory. US RMA, partly characterized by the multiplier effect of advanced sensor-to-shooter information systems, grew out of the assault-breaker initiative and the conventional-initiatives office, which were a direct response to Soviet force structure decisions and operational-art innovations.

The ongoing discussion of US RMA overlooks the evolutionary nature of military technology developments during the Cold War that concerned conventional force-structure changes and doctrinal innovation. The capabilities sought in current capstone documents are based on the same premises that emerged from the programs and offices as discussed. Indeed, future RMA analysis will benefit from exploring the theory underlying the assault-breaker program and innovations that originated in the conventional-initiatives office. Included in these innovations were new concepts addressing how advanced information systems and C4I capabilities could make existing weapons more efficient and produce a multiplier effect.

### NOTES

1. For a survey of Soviet military writing from 1960 to 1974, see William F. Scott, Soviet Sources of Military Doctrine and Strategy (New York: National Strategic Information Center, 1975), 21-89. The first reference to a Soviet RMA was a 1961 study by Colonel G.A. Fedorov, which was prepared by the faculty of the Linin Military-Political Academy.


7. Ibid.

8. Ibid., 253.

9. Doughlass, 17, today the lines between strategic and theater levels of war are blurring. The central elements remain the same—the need to strike throughout the theater simultaneously to support tactical maneuver.


15. Doughlass, 113.


17. Perry, 89.


22. Nicolai Ogarkov, quoted in Cockburn, 196.

23. The term MTR appeared as early as 1973 but was only later used to characterize US efforts. MTR was later adopted in the West where it became a synonym for a diverse field of new Western military technologies and programs.