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USSR: Nuclear Weapons

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left dead. Events in Hungary demonstrated that the Soviet Union had no intention of relinquishing control over its satellites in Eastern Europe.

Beyond the Soviet sphere of control, Chinese Communist Party chairman Mao Tse-tung began expressing dissatisfaction with Khrushchev's leadership following Khrushchev's denunciation of Stalin in 1956. Chinese discontent stemmed from low levels of Soviet aid to China and the Soviet rapprochement with the West, which Mao rejected as a betrayal of Marxism-Leninism. The dispute between militant China and Khrushchev's more moderate Soviet Union developed into a schism in the world Communist movement after 1960. Albania abandoned the Soviet camp to become an ally of China, while Romania distanced itself from the Soviet Union in international affairs. The world Communist movement was no longer Moscow's alone.

Soviet relations with the West seesawed between relaxation and crisis. Khrushchev professed to desire peaceful coexistence, not least to allow the Soviet Union to develop its economy. His meetings with U.S. presidents and his tour of the United States in 1959 demonstrated a sincere commitment to friendly relations. This emerging cooperation was dealt a blow in 1960 when an American U-2 spy plane was shot down over Soviet territory. Khrushchev demanded a personal apology from Eisenhower and canceled a summit meeting in Paris. The standoff over Berlin came the following year. Khrushchev insisted that the western sectors of the city be incorporated into East Germany. When his demands were not met, he authorized the erection of the Berlin Wall. Finally, during the Cuban Missile Crisis of October 1962, relations between the United States and the Soviet Union deteriorated to their worst point during the Cold War. In an attempt to improve the Soviet negotiating position, Khrushchev tried to install nuclear missiles around the island nation. A U.S. blockade and threats of war convinced Khrushchev to back down. Tensions eased in 1963 with the establishment of a "hot line" between Washington and Moscow. In the same year, the Soviet Union, Britain, and the United States signed the Partial Test Ban Treaty.

By 1964 Khrushchev's prestige at home was seriously eroded. The industrial and agricultural reforms that had promised so much yielded little. The Soviet Union's international stature suffered greatly in the wake of the split with China and the Berlin and Cuban crises. Khrushchev's efforts to improve relations with the West had antagonized many in the Soviet military establishment. In October 1964, while Khrushchev was vacationing in the Crimea, the party Presidium voted him out of office.

Khrushchev's reforms, though ambitious, were inconsistent and often unsuccessful. On balance, however, he was an agent of reform and progress. He sought to eliminate excessive bureaucracy and improve the living standards of Soviet citizens. He attempted to ease international tensions through rapprochement with the West. Most significantly, Khrushchev's repudiation of Stalinism began a process of democratization that laid the foundations for the reforms of Mikhail Gorbachev.

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SEE ALSO Cuban Missile Crisis; Détente

Nuclear Weapons

As of the early 1950s the Soviet nuclear arsenal grew from a few dozen atomic bombs to an estimated thirty thousand to forty thousand nuclear warheads. With the breakup of the USSR in 1991, the very real potential existed that some of those weapons, or enough weapons-grade material to create crude nuclear devices, would find their way via the black market to terrorist organizations or outlaw states. Concern over the accidental detonation of one or more of the remaining nuclear devices has also been expressed because of the lack of proper maintenance procedures.

Scholars have divided the Soviet nuclear weapons program into four phases. The early development of the program stretched from 1940 until the mid-1950s. The Uranium Commission was established in June 1940 with a broad research mandate that included exploration for uranium deposits. Research was temporarily disrupted with the German invasion of June 1941, but then continued with a new sense of urgency after Soviet spys uncovered the existence of other programs. With the U.S. detona-

tion of atomic fission bombs over Hiroshima and Nagasaki in August 1945, Stalin gave the Soviet nuclear weapons program an even greater priority.

The first Soviet nuclear chain reaction took place on December 25, 1946. This was followed by the detonation of the first Soviet atomic bomb on July 29, 1949, and two further nuclear tests in fall 1951. These tests were followed by the detonation of a thermonuclear fusion bomb on August 12, 1953. The deployment of nuclear weapons by the Soviet armed forces began in late 1953 or early 1954. These devices were initially placed either on the older Tu-4 Bull or II-28 Beagle bombers. In March 1954 custodial and transport duties for all nuclear devices were assigned to the Committee for State Security (KGB). In 1955 two intercontinental bombers, the Tu-95 Bear and Mya-4 Bison, were deployed along with the SS-3 medium-range ballistic missile (MRBM).

The second phase of Soviet nuclear weapons development took place between the mid-1950s and mid-1960s, centering on the expansion of the Soviet nuclear arsenal. The first submarine-launched ballistic missile (SLBM)—the SS-N-4 Sark—was test-fired from a retrofitted Zulu class attack submarine in 1955. By 1960 this SLBM reached operational status aboard Golf and Zulu class ballistic missile submarines. The first Soviet intercontinental ballistic missile (ICBM), the SS-6 Sapwood, was test-fired in 1957 and deployed in 1959. The deployment of nuclear torpedoes and sea-launched cruise missiles (SLCMs) had taken place a year earlier in 1958.

The fielding of growing numbers of other nonstrategic nuclear weapons such as artillery shells, rockets, and missiles also took place during this era. By 1959 this resulted in a consensus by the Soviet military that the use of nuclear weapons in future warfare was a certainty. Because of this shift in Soviet perspective, a new service was created, labeled the Strategic Rocket Forces (SRF). The SRF quickly became the premier Soviet armed service and the foundation of its military doctrine based on nuclear-war fighting. As an outcome, the land-based missile force became the dominant arm of the Soviet nuclear triad.

The third phase of this program spanned the late 1960s to the early 1980s; it represented the achievement of nuclear parity with the United States and an era of arms control talks that limited the growth of the superpowers' nuclear arsenals. These arms control talks, however, provided far more benefits to the Soviet nuclear weapons program than to that of the United States because of radically different premises regarding the basic intent behind such negotiations. The Soviets bargained primarily from a nuclear war-fighting perspective, while the United States did not. Hence, arms control supported

the Soviet military doctrine based on nuclear weapons, civil defense, and antiballistic missile (ABM) programs that would prepare the USSR for nuclear war.

Increased accuracy, range, and reliability characterized the new generations of Soviet ICBMs and SLBMs deployed during this period. Multiple-independently-targeted-reentry vehicles (MIRVs) were deployed on SS-18 Satan and SS-19 Stiletto ICBMs in 1974, while the first MIRVed SLBM was deployed in 1978. The first mobile ICBM, the SS-25 Sickle, was in turn fielded in 1985. Coupled with these advances in ballistic missiles were those in long-range cruise missile technology with the deployment of the AS-Kent 15 on the Bear H bomber in 1984 and the SS-N-21 Sampson in the Northern Fleet in 1987.

The fourth phase of Soviet nuclear weapons development spans the ascendance of Mikhail Gorbachev in the mid-1980s, the implosion of the Soviet empire, the end of the Cold War, and the rise of the Russian Federation. It has been a dynamic period with a declaratory shift in Russian doctrine away from nuclear-war fighting toward deterrence and greater willingness to engage in more equitable arms control negotiations with the West.

While the future of the old Soviet nuclear weapons program is now uncertain, small numbers of qualitatively advanced forms of strategic weapons are being developed and deployed. If this trend continues and Russian society successfully rebuilds itself to exploit the technologies embodied in the current revolution in military affairs, a future Russian program will easily possess the capacity to outperform its Soviet predecessor. This potential coupled with recent Russian doctrinal viewpoints on future "technological war" (based on advanced military systems) in which strategic objectives can be achieved in an initial deep strike provide potent reasons for further efforts toward the control, limitation, and perhaps total banning of nuclear weapons.

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