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Arms Race

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The Soviet Union decided that in order to counter U.S. coercive diplomacy it would need to acquire the same atomic capabilities as its Cold War adversary. In August 1949 the Soviet Union tested its first atomic bomb, much earlier than the United States had expected, but this did not alter American assumptions that they could continue to contain the Soviet Union by threatening to use nuclear weapons. The United States expanded its production of atomic bombs and in January 1950 Truman authorized the development of a new, more powerful type of nuclear weapon, based on nuclear fusion instead of nuclear fission. In April 1950 the National Security Council issued a top-secret memorandum, NSC-68, which called for a massive buildup of conventional forces so that the United States was not so heavily dependent on nuclear weapons. The memorandum argued that the United States had to be able to respond with conventional forces to Soviet aggression in circumstances where the United States was not directly attacked. One historian of the Cold War has commented that a 'double paradox' had thus emerged in U.S. policy: 'as nuclear weapons became more numerous and more powerful, they also became less usable; but as nuclear weapons became less usable, one needed more of them to deter others who possessed them.' (Gaddis, 1997: 101) The outbreak of the Korean War in June 1950 did much to justify the arguments advanced in NSC-68. Although the United States possessed a 17:1 advantage over the Soviet Union in atomic bombs by 1953, it could put its atomic stockpile to no practical use in Korea because there were no viable strategic targets. Truman was also unwilling to use atomic weapons directly against China because the Sino-Soviet Treaty pledged the Soviet Union to come to China's aid, which may have resulted in Soviet atomic bombing of the United States or its European allies. On the one hand it therefore appears that nuclear weapons were a strategic irrelevance during the Korean War, but on the other hand it is also clear that they encouraged the United States and the Soviet Union to ensure that it remained a limited war.

The arms race escalated further even before the end of the Korean War in June 1953. On 1 November 1952 the United States tested its first thermonuclear device, but this time the Soviets were not far behind and conducted their own thermonuclear test on 12 August 1953. The scientific communities in the United States and the Soviet Union were sobered by the massive increase in destructive capability, but it did not retard the military competition between the Superpowers or their political posturing. Within two years both powers possessed operational hydrogen bombs and effective long-range bombers (the U.S. B-52 and the Soviet TU-20) to deliver them. President Eisenhower, and his Secretary of State, John Foster Dulles, sought to reshape the strategy of containment around three concepts: rollback, brinkmanship and massive retaliation, all of which demonstrated the perceived utility of nuclear weapons as instruments of coercive diplomacy. Eisenhower and Dulles announced that instead of passively containing the spread of communist influence, the United States would actively seek to roll back the Iron Curtain and liberate Eastern Europe. They argued that the United States had conceded the strategic initiative to the Soviet Union and China, allowing them to choose the theatres of conflict (Europe and South East Asia) and choose the weapons (conventional forces). This had meant that the United States had derived no benefit from its nuclear superiority and its economy had been stretched by the attempt to match the communists in conventional forces. The Eisenhower administration emphasized that the United States had to be willing to go to the verge of nuclear war with the Soviet Union and China and declared that in the event of communist aggression the United States would respond with a massive nuclear strike against their population, industrial, and military centers. Stalin's successor, Nikita Khrushchev, refused to be

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intimidated by U.S. nuclear strategic superiority and the doctrine of massive retaliation. He declared publicly on many occasions that the Soviet Union was not afraid to use its nuclear arsenal. By the mid-1950s politicians on both sides were fully aware that a nuclear war would mean the end of human civilization, but they also believed that 'each side's safety required projecting the most credible possible determination to use them.' (Gaddis, 1997: 230)

Phase Two: From Bombs to Missiles, c.1955-c.1965.

In August 1957 the Soviet Union conducted a successful ICBM test and just two months later it launched the world's first artificial satellite, *Sputnik I*, into Earth's orbit, which 'demonstrated that the Soviet Union could operate as a modern industrial power in its ability to mobilize and exploit scientific and engineering talent. For this reason it serves as a watershed in American attitudes on technology and the strategic balance.' (Freedman, 1989: 140) Even though early ICBMs were relatively inaccurate and therefore of limited use against small, protected targets (such as enemy missile sites) they could be very effective against larger targets, such as air force bases. By the time the defending force became aware of an incoming ICBM attack it might be too late to get the bombers off the ground to deliver a retaliatory strike, which threatened the fundamental basis of nuclear deterrence. U.S. bases in Europe would be even more vulnerable, because the warning time would be even shorter. Khrushchev grossly exaggerated the number and accuracy of Soviet ICBMs, and the initial absence of U.S. intelligence on the true extent of Soviet capabilities contributed to an increasing sense of vulnerability in the United States. In

order to compensate for the perceived 'missile gap' Eisenhower accelerated efforts to create a NATO atomic stockpile and offered to station Thor and Jupiter intermediate-range ballistic missiles (IRBMs) in Europe. The United States also rapidly acquired ICBM capability: its first-generation missile, the Atlas, became operational in 1958, and more sophisticated Titan and Minuteman ICBMs were in development. The U.S. Navy's Polaris submarine-launched ballistic missile (SLBM) fleet was built between 1959 and 1964, which far exceeded Soviet SLBM technology. By the time the Polaris system was under construction the United States had a much more accurate picture of Soviet ICBM capabilities as a result of U-2 reconnaissance flights. In August 1960, shortly after the Soviets acquired an anti-aircraft missile capable of shooting down the high-altitude U-2 spy planes, the United States began launching reconnaissance satellites, which greatly augmented U.S. intelligence. In September 1961 the Central Intelligence Agency (CIA) sharply reduced its estimate of Soviet missile strength, reporting that they possessed between 250 and 300 operational IRBMs, and a maximum of 25 ICBMs. In October 1961 Deputy Secretary of Defense Roswell Gilpatric announced that in the event of a surprise attack by the Soviet Union, the United States would still be able to strike back with an equivalent or greater nuclear force. Yet as events would soon demonstrate, this did not mean that the United States was secure from Soviet aggression. Within little more than a year President Kennedy had to deal with a Soviet missile deployment on his own doorstep, in Cuba.

In September 1962 the Soviet Union secretly deployed to Cuba intermediate- and medium-range ballistic missiles, short-range Luna rockets, IL-28 medium-range bombers, MIG-21 fighter aircraft, anti-aircraft defenses, and 42,000 troops. This deployment was motivated partly by Khrushchev's desire to protect Fidel Castro's communist regime in Havana from being overthrown by the United States, but it also offered an opportunity to redress Soviet strategic missile inferiority. U.S. intelligence discovered the presence of the Soviet missiles in October

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1962, leading to an international crisis in which there was a definite risk of nuclear escalation. The crisis was resolved by a quid pro quo: the Soviet Union agreed to comply with U.S. demands for the removal of the Cuban missile bases, and in return the United States promised that it would not invade Cuba and secretly agreed to remove its Jupiter missiles from Turkey. The crisis was a significant turning point in the Cold War because it resulted in a tacit agreement between the Superpowers that they would not initiate a direct challenge in each other's sphere of influence. Although the arms race intensified in the years ahead it was prosecuted within a framework of agreements, such as the 1963 Limited Nuclear Test Ban Treaty, the 1968 Non-Proliferation Treaty, and several rounds of arms control negotiations during the following decade. Thus, 'By the late 1970s, the Cold War had evolved, or so it seemed, into a robust, sustainable, and at least at the superpower level, *peaceful* international system.' (Gaddis, 1997: 280)

Phase Three: The Era of Mutual Assured Destruction, c.1965-c.1980



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the time and place where nuclear weapons might be used in response to an act of communist aggression. In contrast, assured destruction specified that a direct attack against the territory of the United States or its allies would be met with a devastating retaliatory nuclear strike. The principle of assured destruction was therefore concerned with deterring threats to U.S. security, rather than, more broadly defined interests that the threat of massive retaliation was intended to preserve. At this time the United States possessed sufficient nuclear forces to destroy one half of the Soviet population and nearly eighty per cent of Soviet industrial capacity, which far exceeded the proportions (one third and one half, respectively) that the Defense Department judged adequate for assured destruction. Controversially, Secretary of Defense Robert McNamara refused to hinder the Soviet Union's own assured destruction capability. The strategic relationship between the Superpowers became one of mutual assured destruction (MAD). McNamara's critics seized upon this unfortunate acronym, but as Lawrence Freedman has commented 'MAD was no more insane and a lot more sensible than many other strategic formulations.' (Freedman, 1989: 248)

Technological developments threatened the fundamental basis of MAD almost as soon as McNamara made it the accepted basis of U.S.-Soviet strategic relations. In 1964 the Soviet Union began to develop missiles that could be equipped with multiple independently-targeted reentry vehicles (MIRVs). Soviet ICBMs were larger and carried far more destructive payloads compared to their U.S. counterparts. Within a few years a single Soviet ICBM with a MIRV warhead would be capable of more precise targeting of multiple ICBM silos, which threatened the survivability of the U.S. land-based nuclear force. In 1967 the United States responded by starting the development of MIRV warheads for its Minuteman ICBMs and Poseidon SLBMs. The Soviet Union also prompted U.S. concern by developing an anti-ballistic missile (ABM) capacity, which threatened the penetrability of ICBMs. Some U.S. nuclear strategists deemed ABMs deployed around ICBM sites to be acceptable because they increased the prospects of survivability, but those that were intended to protect industrial and civilian targets were thought to undermine a central feature of assured destruction. Concerns about the increasing destructive

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capacity of warheads, the speed and accuracy with which missiles could deliver them, and ability to evade interception, provided the impetus to the Strategic Arms Limitation Talks (SALT), which began in 1969. The SALT I Treaty, signed in May 1972, contained an effective agreement limiting ABM systems indefinitely, but the agreement on offensive missile systems

left many salient issues untouched and would expire in 1977. The Superpowers began a new round of talks in November 1972 but found it difficult to reach agreement on the number of missiles, and in particular MIRVs, that should be operationally deployed. SALT II, which was not signed until 1979, set significant limitations on delivery systems and warheads, but the U.S. failed to ratify the Treaty due to a profound change in the political climate. This produced a shift away from détente and a renewed escalation in the arms race.

Phase Four: The End of the First Nuclear Age, c.1980-c.1990

In the United States a combination of factors produced a sense that the Soviet Union was becoming stronger and the emphasis on arms control was misplaced. The increasing size of the Soviet Navy – greatly inferior to the U.S. Navy in surface vessels but possessing far more submarines – and its forays into the Mediterranean was a matter of concern for the United States and its NATO allies. Soviet deployment of multi-warhead SS-20 missiles, Soviet and Cuban involvement in African civil wars, U.S. discovery of a Soviet brigade in Cuba, and above all the Soviet invasion of Afghanistan, persuaded many that the Soviet Union could not be trusted. From the Soviet perspective there was also much to provoke fear and suspicion, including good U.S.-Chinese relations, a belief that U.S. intelligence services were fostering political dissent in Poland, and especially the election of conservative governments in the United States and Europe.

President Ronald Reagan's conviction about the evils of Soviet communism was translated into a robust policy of strategic rearmament. The United States deployed cruise and Pershing II missiles in Europe, and mobile MX/Peacekeeper ICBMs in its homeland, expanded its Trident SLBM program, and renewed the defunct B-1 bomber project. In 1983 Reagan also announced the Strategic Defense Initiative (SDI), which proposed a defense system capable of eliminating missiles from orbit after they had been launched. This scheme, (known to its critics as 'Star Wars' because it appeared so fanciful) contravened the 1972 ABM Treaty and therefore alarmed the Soviet Union. These deployments and projects, combined with a series of war scares in 1982-83, created a crisis atmosphere in the United States and the Soviet Union that was only slightly less serious than October 1962.

In November 1984 Reagan was re-elected by a landslide majority. He instructed his Secretary of State, George Shultz, to pursue a dialogue on nuclear weapons with the Soviet Union. The emergence of Mikhail Gorbachev as Soviet leader in March 1985 began an unexpected process of transformation in the Soviet Union and international politics. Gorbachev initially had no intention of relaxing the arms race but he soon realized that the Soviet economy was no longer capable of sustaining the pace of competition with the United States. At a meeting in Geneva in November 1985 Gorbachev and Reagan declared that they were in favor of reaching an agreement on long-range weapons and intermediate nuclear forces (INF) in Europe. The following year the two leaders met again at Reykjavik but the summit collapsed as a result of Gorbachev's insistence that the United States abandon SDI in return for the elimination of INF in Europe and reductions in long-range nuclear forces. Faced with a worsening domestic economic crisis Gorbachev was forced to climb down from this position and visited Washington in 1987 to

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sign an INF Treaty that contained no reference to SDI. Although military spending in the Soviet Union ceased to grow after 1988, the amount that it spent on defense in the period 1985-1990 equaled or exceeded the amount spent in the first half of the decade. Whereas the Soviets had spent 10-12 per cent of GDP on defense in 1960, this increased dramatically to thirty per cent during the 1980s. Thus, as one political scientist has remarked: 'Ultimately, arms control did not end the arms race; armaments did.' (Leebaert, 2002: 517) In 1991 President George H. W. Bush and Gorbachev signed the first Strategic Arms Reduction Treaty (START I), followed two years later by START II, which dramatically reduced the numbers of land- and sea-based strategic nuclear missiles. These agreements brought a clear end to the 'first nuclear age', which was contemporaneous with the Cold War and was characterized by an arms race between the

continuous with the Cold War and was characterized by an arms race between the Superpowers. The 'second nuclear age', in which we live today, carries the potential risks of asymmetric nuclear conflict between the United States and lesser nuclear powers, or conflict between nuclear armed regional rivals. In these circumstances nuclear strategists can draw few useful conclusions from Superpower deterrence in the 'first nuclear age'. (Gray, 1999: 325)

The Arms Race: Scale and Risks

By the mid-1980s, just a few years before the end of the Cold War, the United States possessed around 26,000 nuclear weapons and the Soviet nuclear arsenal probably contained in excess of 40,000 weapons. Given that a nuclear exchange involving just a few hundred warheads would have been enough to destroy human civilization through massive thermonuclear explosions and long-term irradiation, it obviously raises the question: Why did the Superpowers deem it necessary to possess so many nuclear weapons? The answer lies in the features of nuclear deterrence. The nuclear strategist Colin S. Gray has explained that in 'common nuclear lore' the avoidance of gratuitous risk is essential: 'When the political stakes are as high as this, there is comfort in sheer quantity. There is no strategic virtue in being nuclear-armed lightly, as contrasted with plentifully. A larger scale of nuclear posture reassures its owner and the owner's security dependants, while discouraging aspirations for successful surprise attack by nuclear armed foes.' (Gray, 1999: 342) The United States and the Soviet Union both recognized that the survivability of their nuclear forces was critical for effective deterrence, in other words they needed to retain a second strike capability, guaranteed to survive an aggressor's first strike. The concept of first and second strikes emerged in the early 1950s. A first strike was taken to refer to an attack that was not only an opening volley in a nuclear war, but was also directed against the nuclear weapons of the enemy with the intention of crippling his retaliatory capability. A second strike force was one capable of ensuring effective retaliation even after an enemy first strike had been absorbed, and that could be directed against civilian and industrial, as well as military targets. In order to ensure a second strike capability the United States and the Soviet Union developed a triad of delivery systems: bombers, ICBMs and SLBMs. Each element of this triad had to be capable of eliminating sufficient numbers of enemy targets, which helps to explain the very high numbers of nuclear weapons that the United States and Soviet Union possessed.

The twentieth century began with an arms race that contemporaries believed was a direct cause of the First World War. The unprecedented slaughter of 1914-18 created a moral revulsion against war and stimulated international efforts towards arms control. Rearmament by the militarist regimes in Germany, Italy, and Japan during the 1930s compelled the Western democracies also to rearm. The outbreak of war in 1939 was therefore once again associated

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with an arms race between the major powers. The arms race between the United States and the Soviet Union, on the other hand, did not result in the outbreak of war, so: Did the arms race prevent the Cold War from becoming hot? It is comforting to believe that because nuclear weapons are so destructive, and because mutual destruction was assured, no sane statesman in the United States or the Soviet Union would have willingly ordered a full-scale nuclear attack. Yet this ignores two significant factors. First, the Superpowers did not confine their strategic orientation to the realm of deterrence and actively attempted to formulate a war-fighting strategy in the belief that a nuclear war could be won. Second, command and control systems were not infallible and the risks of an accidental nuclear exchange were far greater than generally appreciated during the Cold War or since. Thus, 'it is appropriate to ask whether humankind survived the decades of East-West Cold War more by luck than by strategic prudence.' (Gray, 1999: 298)

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