

## THE IMPACT OF THE ABM TREATY ON THE NUCLEAR ARMS RACE

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### Abstract

*In this paper 'alternative history writing' is used to envisage a world where no agreement on limits on ballistic missile defences would have been reached. The effects on the number of nuclear weapons, nuclear weapons technology and missile defence technology of the two superpowers are speculatively estimated. Third parties: the "minor" nuclear powers and nuclear-weapons-free states are found to be beneficiaries of the ABM Treaty.*

The SALT I agreements, of which the ABM (Anti-Ballistic Missile) Treaty was a major component, concluded in 1972 and ushered in an era of bilateral Soviet-US agreements attempting to curb a rampant nuclear weapons arms race. The main content of the Treaty was to limit the number of ABM sites to two per party with at most 100 missiles per site. In 1974 a protocol was signed reducing the number of sites to one per party. After the disintegration of the Soviet Union, a Memorandum of

Understanding was signed between Belarus, Kazakhstan, Russia, the United States and Ukraine upholding the terms of the Treaty. In December 2001, the United States gave notice of their withdrawal from the Treaty, which thus ceased to be in force six months later.

The ABM Treaty was only concerned with defence against 'strategic ballistic missiles', with the term 'strategic' left undefined. The only permanently deployed remnant of the ABM Treaty is the system defending Moscow, originally employing the A 35/'Galosh' long range missile equipped with an enhanced radiation nuclear warhead ('neutron bomb'), the only enhanced radiation warhead ever deployed<sup>1</sup>. The United States cancelled its Safeguard-site (designed to protect Minuteman silos from attack) in 1974 due to poor performance and high costs - recurring themes in missile defence.

What did the ABM Treaty achieve? Let me start with a historical footnote on the positive effects of especially the 1974 Protocol. Had the Soviet Union built a second ABM site, as allowed by the 1972 Treaty, it would have been to defend Leningrad (now St Petersburg). The interception of ICBMs

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<sup>1</sup> The reason for employing enhanced radiation warheads is that the main effect of a high-altitude interception is the X-ray induced shock damaging the incoming warheads, especially their heat shields.

launched from the United States towards targets in the Leningrad area would have happened in Finnish airspace. The 1974 Protocol spared us Finns from the prospect of these nightmarish nuclear fireworks with the concomitant pollution and Electro-Magnetic Pulse (EMP) problems.

Several official statements issued after meetings between leaders of the United States, the Soviet Union (later Russia) and China emphasized the positive effects of the Treaty in stabilizing the strategic stand-off between the US and the Soviet Union. The catch-phrase, repeatedly used, was that the Treaty was "the cornerstone of strategic stability". One aspect of this is that an arms race fuelled by the growth in the numbers of offensive and defensive weapons to try to offset the effects of each other was delayed for some time.

But to assess the significance of the Treaty beyond official statements, I shall use the method of writing an alternative history: how would the nuclear arms race have developed if an ABM treaty had never been signed? For sure, the second part of the SALT I agreements, the Interim Agreement on the Limitation of Strategic Offensive Arms, which froze the numbers of ICBMs and SLBMs at current levels for five years, would also not have seen the light of day. The Interim Agreement was

however, nullified in practice by the introduction of Multiple Independently targeted Re-entry Vehicles (MIRVs) by both parties, thereby greatly increasing the number of deliverable warheads.

A major rationale for the Treaty was the fear that with ABM systems in place, the parties would go in for overwhelming the defences, not just by using decoys, but also by building up the number of offensive weapons. There is little doubt that this would have happened, but it is hard to quantify by how much. The Treaty did not prevent the insane build-up of the number of warheads in the Soviet nuclear arsenal in the 1970's and the first half of the 1980's, nor the hoarding of fissile materials by all nuclear weapon powers. Possibly the rate of increase of Soviet nuclear weapons would have been even greater, leading to an even greater strain on the Soviet economy, with a collapse occurring sooner. Also, the US would probably not have been content with a roughly constant number of warheads during this period, but would have gone for a slight increase, although I do not think by much; there is little rationale in assigning 7 bombs per target instead of 5 (the numbers are arbitrary for illustration purposes only). The fear of efficient ABM systems nullifying small deterrent forces would also have put pressure on China, France, and the UK to build

as large nuclear arsenals as their economic resources allowed.

So, numbers would have been up; what about qualitative developments? Redesigning warheads to counter known ABM measures would have been a high priority leading to demands to continue testing. It is thus likely that acceptance of a Comprehensive Test Ban Treaty would at least have been greatly delayed. One should also remember that the ABM Treaty was the first to prohibit a party from interfering with the technical means of verification, paving the way for technical solutions to the ever-thorny problem of verification. Without the Treaty, acceptance of this idea might have been delayed.

With effective missile defences (or rather, missile defences purported to be effective) deployed, the spectrum of nuclear weapon vectors would be different from what actually occurred. Long range cruise missiles, supersonic bombers and possibly hypersonic gliders and cruise missiles, together with their associated countermeasures, would have been important components, until hopefully curbed by disarmament treaties. Advances in offensive technology, so much easier to achieve than in defensive, would certainly have been a destabilizing factor in the relations between the superpowers. How much the ABM Treaty contributed to the Gorbachev-Rea-

gan thaw and the INF (Intermediate-Range Nuclear Forces) Treaty remains very much open to speculation, especially when taking into account the Strategic Defence Initiative (SDI) adventure. However, the effect of the Treaty cannot have been negative.

The previous reasoning presupposes that reasonably efficient missile defence systems would have been developed and deployed in the absence of an ABM Treaty. Are there indications that this would have been the case? The Treaty permitted research on and limited testing of any type of missile defence, and such activities were certainly pursued with vigour in the US and probably in the Soviet Union, too. This research effort failed to produce really efficient weapons be they for strategic, theatre or area defence. The problems involved are so great that I for one suspect that no better technology would have been invented other than what was actually developed.

In fact, one can argue that the large-scale deployment of early versions of anti-ballistic missiles would have delayed the development of more sophisticated weapons because of the inertia and the lock-in effect inherent in military technology. A political danger would have been that overconfidence in flawed missile defences would have led to more aggressive policies and less willingness to

enter into arms reduction negotiations.

If, on the other hand, the poor performance of interceptor-based missile defences would have been fully appreciated at the time in a world with free-for-all ABM development, unconventional substitutes for anti-ballistic missiles would certainly have been started to be developed earlier. These include 'left-of-launch' techniques, preventing missiles from being launched by surreptitiously disabling or destroying them.<sup>2</sup> Also, interceptor-based systems require high-speed reliable communications between radars, command centres and launchers and these can be jammed or hacked. Such concepts are surfacing now; without the ABM Treaty we might have seen them twenty years ago.

To sum up, a world without the ABM Treaty would have entered the end of the Cold War (if we had been spared a nuclear holocaust) with more nuclear warheads, more means of delivering them, more nuclear tests, and a lot of useless military hardware in the form of missile defence systems. That these changes would have made arms reduction talks harder is quite probable.

The real benefactors of the bilateral ABM Treaty were,

to my mind, the third parties: the "secondary" nuclear powers because of not having to build oversized arsenals and, as the Finnish example shows, non-nuclear armed countries which did not run the risk of being used as battlefields. In this latter respect I find it hard to understand the policies of some NATO countries to willingly agree to the positioning of ABM systems on their soil following a mildly speaking unclear NATO missile defence policy.<sup>3</sup>

The ABM Treaty did not retard the nuclear arms race of the 1970's and 1980's by much. It shows that partial measures, although important, cannot save us from the threat of nuclear war. The only permanent solution is the global adaption of the Nuclear Weapons Ban Treaty.

## References

Stanislav Abaimov & Paul Ingram: Hacking UK Trident: A Growing Threat, British American Security Information Council, June 2017

Tytti Erästö: Between the Shield and the Sword. NATO's Overlooked Missile Defense Dilemma. Ploughshares Fund, June 2017

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<sup>2</sup> A recent case study is Stanislav Abaimov & Paul Ingram: Hacking UK Trident: A Growing Threat, British American Security Information Council, June 2017.

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<sup>3</sup> For a clear analysis, see Tytti Erästö: Between the Shield and the Sword. NATO's Overlooked Missile Defense Dilemma. Ploughshares Fund, June 2017.