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Questions and Answers about Space Weapons

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Summary:

This CND pamphlet sets out the case against the development of the Strategic Defense Initiative which was being pursued by the Reagan Administration.

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Questions and Answers about **SPACE WEAPONS**



This is one of a series of question and answer leaflets designed to provide basic information on different aspects of the arms race.

Those currently available include Questions and Answers about...

- Cruise
- Trident
- Non-Nuclear Defence
- Hiroshima and Nagasaki
- Christians and Nuclear Disarmament
- Civil Defence
- NATO
- The Illegality of Nuclear Warfare



1. What exactly are space weapons?

Space weapons are machines which can damage or destroy objects in or from space. This definition covers attacks from machines on earth up to space, from space down to earth, and within space from one point to another. For practical purposes today, space weapons are divided into two main types, those for attacking man-made satellites – 'ASATs', short for anti-satellites, and those for destroying long-range nuclear missiles, which would pass through the edge of outer space during their flight from one side of the world to the other, known as 'BMD', for Ballistic Missile Defence. This latter type would form the proposed 'Strategic Defence Initiative', which is being popularly presented as 'Star Wars'.

2. How do ASATs work, and what is their purpose?

Satellites are very vulnerable to indirect attacks against their essential ground-stations, or their radio links to earth. Anti-satellite weapons proper are designed to damage satellites directly. This can be done either by intense radiation from a nearby nuclear explosion, or by direct collision with shrapnel from a non-nuclear explosion or with a guided non-explosive warhead, or perhaps one day by an intense beam of 'directed energy' from a very powerful laser. All types of ASAT depend on very accurate tracking and guidance in order to hit their distant and fast-moving targets out in space.

Most satellites launched by the USA and USSR have always been for military purposes. They are used for early warning, reconnaissance, communications, and navigation. For instance, over 80% of all US military communications are now routed through satellites, without any alternative back-up systems down at the planet's surface. But in recent years the new information technologies have resulted in satellites becoming potentially more useful *during* any war, instead of merely before it. For that reason both sides now see satellites as important targets, and have been thinking out ways to gain decisive military 'advantages' in the first few minutes of war, by attacking those of their opponents whilst trying to protect their own. (This rationale applies, it should be noted, to major conventional conflict, not just to any nuclear war.)

3. Are all satellites equally vulnerable? Can't they be protected somehow?

Satellite vulnerability depends on how far their orbits are from the earth's surface. Present-day ASATs can only reach out to a distance of about 2,000 km., and many important satellites are ten times further away than that, or more. But it happens that the Soviet Union has more military satellites in orbits which bring them at least some of the time to lower, vulnerable altitudes of 300 to 2,000 km. The United States has some low altitude ones too, especially for reconnaissance. But many strategically important US satellites are at altitudes of 20,000 or 36,000 km.

4. What sort of anti-satellite weapons exist today?

Since the late 1960s the Soviet Union has been developing a rather primitive ASAT armed with conventional explosives. It is a sort of satellite in its own right, launched into orbit on a large rocket, the SS-9. It takes several hours, sometimes more than a day, to adjust its orbit until it partly coincides with that of the target. Once close enough it explodes in the path of the target, and destroys it with a cloud of shrapnel. It can attack targets at up to 2,300 km. altitude. The number deployed is not precisely known in the West, but is thought unlikely to be more than 30 at most.

US military technologists have always preferred the 'direct ascent' method for ASATs, in which the attacking missile heads straight for the target instead of going into a pursuit orbit. After several previous programmes, they are currently testing an air-launched missile, carried on F-15 fighters, which sends up a small (30 x 30cm) third stage, with the title of Miniature Homing Vehicle (MHV), to an altitude of about 1,900 km. Both the larger missile and the MHV are guided by infra-red telescopes which can detect the target satellite's relative 'warmth' (against the cold of outer space). The accuracy of these systems enables the MHV to destroy its target by direct collision, which in turn means it can be light and small because it needs no explosives. (Hence the term "hittile".)

By comparison with the Soviet ASAT, the US system promises to be faster and more flexible, and

there are plans to deploy 112 MHVs on 56 aircraft worldwide, starting in 1987.

5. What's been happening about a treaty to ban ASATs?

There were Soviet-American talks on this question in 1978 and 1979, from which the US delegates withdrew after the invasion of Afghanistan. But negotiations were already at deadlock, with the Americans worried about verification problems, and the Russians anxious to include the space shuttle under any treaty restrictions, a proposal that was quite unacceptable to the USA.

6. What does it matter if they want to start a shoot-out in space some day?

Unfortunately, if war begins, although hostilities will initially take place in space they will spread very quickly onto the surface of the planet, with each side anxious to use its military forces effectively before their celestial 'force-enhancers' are all destroyed. Furthermore, though future space weapons may be non-nuclear, their use against satellites used for early warning of attack is likely to result in early use of strategic nuclear forces.

7. If ASATs increase the risk of war, shouldn't we support President Reagan's 'Strategic Defense Initiative'?

Experts agree that the basic problem about large-scale anti-missile defences in the present situation, assuming they were technically feasible, is that they are likely to be acquired at different speeds by the two sides, or to be *thought* to be so, which amounts to the same thing. In such circumstances, the side which felt itself to be losing the technological race might fear that its opponent was gaining the political, and conceivably also the military, advantage of a 'first strike capability'. The 'defence shield', in theory, would allow the aggressor to use nuclear weapons, because it would be protected from retaliation. The other side, anxious to protect itself, could be tempted to launch an attack before the 'shield' was completed. Hence the view expressed by British Conservative, Labour and Alliance politicians alike, that anti-missile defences are deeply 'de-stabilising'.

8. What is the rationale of the SDI programme?

In the past, US and Soviet military planners agreed that even a small defensive capability, much less than enough to protect whole populations (as hoped for by President Reagan), would be a dangerous development because it would undermine the other side's supposed ability to 'deter' the one with the new-found defences. This was the idea of 'security' through 'mutual assured destruction'. American negotiators worked hard to persuade Soviet representatives to accept this flawed and dangerous concept in the late 1960s. The point was then enshrined in the 1972 Anti-Ballistic Missile Treaty.

Today, a rival breed of American strategist has gained political influence, and is pushing for defensive systems as part of a programme to restore US strategic 'superiority'. They argue that the USA's global political power can only be preserved by acquiring capabilities for fighting a nuclear war and coming out on top. With anti-missile 'defences' the USA would no longer need to let itself be 'deterred' by Soviet nuclear forces, and in the meantime, this political superiority would allow it to press its demands on other world issues. This is a vain attempt to put the clock back to the days of one-way or 'unilateral' nuclear deterrence, before the Soviet Union got strategic nuclear forces. But the real danger of this whole approach is that the transformation of strategic realities, which it calls for, cannot in fact be achieved. The Soviet Union would have access to cheaper and more reliable technical and strategic counter-measures, with which it could undo the advantages of US anti-missile defences.

The response to space weapons would unleash a new round of arms escalation of greater sophistication and danger.

9. How would 'anti-missile defences' work?

The 'Strategic Defence Initiative' scheme would need several independent lines of defence, usually known as 'layers', against the attacking missiles. And of these layers the successful development of the first one, designed to attack the enemy missiles

in the first few minutes of their flight, would be crucial to the whole idea. Because of the need for this BMD system to operate very rapidly, and against targets thousands of miles away beyond the normal horizon, it is the layer which more than any others is bound to involve some space-based elements, and for which the speed of so far hypothetical laser weapons would be most important.

10. Surely the SDI is only a multi-billion dollar research programme, so why worry?

One of the problems with arms control measures has always been the difficulty of defining and maintaining the border between experimental, laboratory research and the engineering development of practical models, on the basis of which the banned weaponry could be rapidly and secretly produced for a sudden 'break-out' from the treaty concerned. The SDI deliberately sets out to exploit this legal 'grey area', thereby undermining existing arms control measures, such as the Anti-Ballistic Missile and Outer Space Treaties, and also making future agreements even harder to reach. Furthermore, the increasing technical 'cross-over' between anti-satellite and anti-missile systems means that any major development work with space weapons will make progress difficult in this area of arms control. As we are now seeing at Geneva, that in turn makes arms control negotiations in other areas very unlikely to succeed. Long before they could be used, therefore, space weapons would begin harming all of us.

11. But aren't the Russians building anti-missile systems too, so that America has to press on with SDI?

There is another, far less expensive and more reliable way to do that. Namely, to have an arms control agreement which stops the competition in the first place. That was what the 1972 Treaty achieved for some years. Indeed, that very Treaty allowed for revisions to prevent the use of new anti-missile technologies of the sort being proposed – unilaterally – by the Americans today. And if the Treaty needs overhauling, as it certainly seems to, then there are agreed mechanisms within its provisions for doing just that.

12. President Reagan said he would share new defensive technology with the Soviet Union. Is he sincere?

Recent statements from the Pentagon have made it clear that this idea was not acceptable to US military leaders. Since 1984, administration members have spoken about sharing the 'concept' of increased reliance on anti-missile defences with the Soviet Union, instead of the actual means to do so. In simple terms, all this means is that the US government would like the Soviet government to agree to conduct the arms race in ways which make it easier for the US to 'prevail'.

13. Are there any other treaties which cover this side of the arms race?

Besides the ABM Treaty already mentioned, the 1967 Outer Space Treaty bans nuclear and other mass destruction weapons from space, forbids use of the moon or other celestial bodies for military purposes, and states that space in general must be used only for peaceful purposes, in accordance with the UN Charter.

14. Haven't the Russians already broken the ABM Treaty?

This claim by the US administration is strongly disputed by American and other arms control experts. There is in any case provision under the ABM Treaty for the two parties to sort out such cases between themselves, and at the end of 1982 American and Soviet representatives issued a joint statement in Geneva, stating that they were perfectly satisfied with the working of the Treaty up until then. However, the truth is that both the USA and the USSR have been more and more openly flouting the Treaty, in tacit collusion with each other, by running development programmes which are forbidden by it.

15. What will the new arms talks do about space weapons?

The arms talks will ensure that the *issue* of space weapons becomes an even more central dispute between the two superpowers than it already is. But as for *resolving* it, the determinatin of both sides to make political gain by courting public opinion, will probably make that impossible.

16. How have European governments responded to these new developments?

NATO members may have been pressurised into giving verbal support to the SDI as a research programme, but if it ever comes to deployment of strategic defences they will repeat their long-standing opposition to the whole idea, for the reasons given above. Hence the speech by the British Foreign Minister in March 1985, giving the US due notice to that effect. Of course, the so-called 'independent' nuclear governments of France and Britain have their own reasons for disliking the prospect of a world in which massive Soviet anti-missile defences would be tolerated by the US, for this could mean they had been effectively disarmed, by agreement between the superpowers.

17. Most space weapons don't seem to use nuclear warheads, so why is CND getting involved?

Space weapons are not strategically separate from the essentially nuclear confrontation between East and West. They are *not* an alternative, harmless way for our rulers to fight their wars somewhere 'out there', so that humanity and our planet would not be harmed. On the contrary, they are part of the struggle to gain 'superiority' in respect of nuclear war-fighting capability. This dangerous and immoral concept requires far more than large numbers of nuclear warheads. It requires complex, risky space systems to deal with them, in turn increasing the risk of nuclear war starting by accident. Just the attempt to build a 'Star Wars' system increases world insecurity, goading the Soviet Union into new anxiety and more rearmament.

18. So what can we do to stop or slow down this new phase in the arms race?

We can start by welcoming all criticisms of the space weapons programmes of both superpowers, wherever they may come from politically. We can refuse to allow politicians or the media to get away with claims that space weapon programmes are harmlessly defensive, or mysteriously good for international relations. And we can explain to friends or workmates the ways in which the drive for superiority in and through space is part and parcel of the mad and dangerous nuclear arms race. We can join the tens of thousands of people in the Campaign for Nuclear Disarmament who are working to take Britain out of the arms race and into the peace race, and to help stop our planet from remaining the suicidal weapon it has steadily been turned into over the past 40 years.

Further Reading:

* THE ANTI-BALLISTIC MISSILE TREATY 1972-83
Peace Research Reports No. 3, Bradford School of Peace Studies
by Rip Bulkeley

* COUNTDOWN TO SPACE WAR
by B. Jasani & C. Lee
SIPRI

* STAR WARS: SELF DESTRUCT INCORPORATED
by Ben & Edward Thompson
Merlin Press

THE FALLACY OF STAR WARS
Union of Concerned Scientists
Vintage

* These and other titles are available from the CND Bookshop, 22-24 Underwood St, London N1 7JQ