War Is the Father of All Things

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War is the father of all things Space travel has always had a military background

A glittering starry sky arches over an alien planet. A gigantic star cruiser passes over the observer as it fires its laser cannons at another spaceship from every possible angle. Everything is accompanied by the sound of explosions and gloomy orchestral music.

Such images are often the first unconscious associations that come to mind as soon as the arms race in space is mentioned. Decades of entertainment from Hollywood and countless depictions in books, comics and video games have contributed to the fact that the general public first visualises

manned spaceships with lasers when it comes to weapons in space, thus assigning the whole thing to the distant future.

However, the topic is far more topical than many would expect. The weaponisation of space has once again become a hot topic in recent years with the rise of China as a superpower and the polarisation of the world – rapidly accelerated by Russia's invasion of Ukraine. A wide variety of new projects are being launched around the world, which are now the basis for an arms race in space. The global debate on how this should be dealt with from a security policy and legal perspective has also picked up speed again.

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As recently as May 2024, the United Nations General Assembly discussed how to deal with the fact that Russia had recently blocked a motion by Japan and the USA in the Security Council, which stipulated that all states, especially those with access to space, should actively contribute to the peaceful use of outer space and the prevention of an arms race in space. Russia had raised legal concerns and rejected the motion; China abstained.

The true background is unclear. What is clear, however, is that China has been intensively expanding its presence in space for years. The first Chinese space station was launched into orbit back in 2011, and the third station has been under construction since 2021. In 2019, China launched more space rockets than any other nation for the first time and is now firmly established as number two after the USA. It was only in November 2024 that the US Space Force warned that China had recently stationed more than 970 satellites in space to support attacks on US aircraft carriers.

At the same time, Russia was accused of building a nuclear weapons system that could destroy satellites on a large scale. At the same time, the USA itself is pushing ahead with programmes in which more than 1,000 satellites are to take on various military support tasks by 2026.

Europe is currently involved in planning, but not much more. Satellite constellations for military applications are being investigated, but no more than two space launches were achieved in 2024. For comparison (as of 3 December 2024): Japan launched 6 rockets into space, Russia 15, China 59, the USA 142. Even India, with 3 launches, was 50% above Europe's performance. India is also increasingly endeavouring to play a role in space, as demonstrated by a successful test of an anti-satellite weapon in 2019. However, none of this is new.

Since its earliest beginnings, space travel has been closely interwoven with armaments and military use, as a detailed look at this reveals. A journey through the history of the development of space travel makes this clear.

The diversions via the weapon

Although the true motives of the space pioneers who opened the door to the heavens in the first half of the 20th century can be traced back to the musings of Jules Verne or other visionaries, the military was always

the driving force, using the basic human need for security as defined by Abraham Maslow as a driving force to justify the huge financial expenditure that made the development of space travel possible in the first place : The path led to space via weapons.

The best known of those who entered into this Faustian pact in order to realise their visions of space travel via the military were Wernher von Braun and his team. Today, it is often overlooked that this route was chosen even before the Nazi Party seized power: as early as 1932, the Army Weapons Office under Walter Dornberger engaged several rocket enthusiasts who had previously gained their first experience in rocket construction in the Berlin "Verein für Raumschifffahrt". Under von Braun's technical direction, the Reichswehr began work on a series of rockets that were intended to transport explosive charges over several hundred kilometres. The plan was to circumvent the Versailles Treaty, which had prohibited Germany from procuring long-range artillery at the end of the First World War, but did not mention rockets. Von Braun and his comrades-in-arms initially saw this as the only way to obtain sufficient funds for their plans to develop the technologies that would later open the door to space.

After the Nazis came to power in 1933, the programme continued at full speed. The politico-military leadership was tricked into saving the programme from cancellation several times, and in 1942 the first flight of an Aggregat 4 finally took place, which was to become sadly famous under its propaganda name Vergeltungswaffe 2 (V2). The ancestor of all modern space transport systems had been created, made possible by the diversions via the rocket as a weapon.

At the end of the war, the victorious powers, the USA and the Soviet Union, continued to develop the captured technologies, but initially only as weapons. The Cold War was already in full swing. In the USA, there were initially only half-hearted attempts to incorporate the know-how of German engineers; Stalin, however, saw the potential of the nuclear missile as the ultimate weapon with which – in contrast to aircraft or other armaments, where the Americans had an unassailable technological lead – they could not only catch up with the USA, but would be superior to the Americans.

The Soviet Union therefore put a huge amount of effort into developing powerful missiles for use as weapons, starting with a replica of the German V2 under the name R-1. After a decade, the efforts culminated in the R-7, the world's first intercontinental missile, which was to reach as far as the American east coast with a nuclear warhead. And this weapon was finally to herald the age of space travel. For on its fifth test flight, on 4 October 1957, chief engineer Sergei Korolyov succeeded with his proposal to launch a light object with the rocket, which – if successful – would orbit the earth as the artificial satellite Sputnik 1.

The endeavour succeeded, and the fact that the Politburo completely failed to recognise the significance of this event is best illustrated by the

fact that this success was initially only worth a marginal note in the leading Soviet media outlet Pravda. Only the huge media response from the West finally ensured that the Soviets also exploited the success of Sputnik for their own purposes. The potential of space as a propaganda vehicle was recognised and the space race was finally in full swing.

Into space with weapons rockets

The Americans now did everything they could to catch up with the Soviets, while the latter tried to maintain their lead. New generations of nuclear rockets and the first spy satellites continued to be developed in the background, but the "Race into Space" was visible to the whole world: the first human flight into space – Gagarin in 1961 on a Soviet R-7 nuclear rocket – was followed by the flights of US astronauts Shepard on the Redstone medium-range rocket in 1961 and Glenn on the Atlas intercontinental ballistic missile in 1962. This race was soon to culminate in the successful US moon landing in 1969, carried out by the ninth generation of rockets developed by Wernher von Braun's team: the Saturn 5, which still had significant technical parallels to the old V2, but for once was no longer developed as a weapon carrier . However, even the Apollo moon programme could not shake off its close ties with armaments. For example, of the twelve astronauts who walked on the moon up to 1971, only one was a civilian; all the others were soldiers on temporary leave of absence from NASA.

In the Soviet Union, on the other hand, only converted weapons rockets were used for space travel. The Proton, the workhorse of unmanned Russian space travel right up to the present day, first flew in 1965, when it was developed as the UR-500 heavy intercontinental ballistic missile. The Soyuz, which still flies astronauts to the International Space Station today, is a moderately modernised version of the R-7 nuclear rocket. And there are even reports that the unsuccessful Russian N1 moon rocket was originally designed as a super-heavy intercontinental ballistic missile

Meanwhile, largely unnoticed by the West, the Soviet Union had transferred technology and expertise on weapons rockets to its neighbour China at great expense, which now also devoted itself to the development of increasingly powerful large rockets – primarily for weapons use, such as the DF-5 intercontinental ballistic missile, which also launched China's first satellites into space in a modified version as the Long March. To this day, China's taikonauts use this technology to fly into orbit.

Armour as a driving force

After the moon landing, the course was set in America towards a reusable space transporter. This was largely based on the rudimentary developments that had initially been carried out during the Second World War under Eugen Sänger for his Silbervogel project, a reusable space transporter that was to attack the USA from Germany as a "long-range bomber" and land

back in Germany after orbiting the earth. This approach was continued in various projects in the USA after the war, for example in Boeing's X-20 Dyna-Soar, in which a Titan intercontinental ballistic missile was to launch a winged manned capsule on a trajectory that would today be described as "hypersonic". The X-20 was to be used for military reconnaissance and targeted bombing. The project was well advanced, but was cancelled in 1963. However, the findings formed the basis for the subsequent development of the Space Shuttle, which was equipped with a huge cargo bay to transport the latest US spy satellites into orbit – the US Air Force insisted on these dimensions, which made the project significantly more expensive than initially hoped. This was possible because the Air Force itself had ordered a fleet of several space shuttles and was therefore a customer alongside NASA. These were to be launched from Vandenberg in California, where the launch pad built for this purpose still stands today.

There are many other known armaments projects from the Cold War era that were never realised. As early as 1948, manned military bases on the moon were being considered in the USA, but serious projects for this only emerged after the Sputnik shock. From 1958, the US Air Force investigated the possibility of maintaining a manned nuclear missile base on the moon from 1967 in order to guarantee the USA the ability to retaliate in the event of a Soviet surprise attack. The possibility of building spy facilities on the moon to observe the earth was also investigated. In one specific case, Boeing, for example, proposed to use astronauts to examine the lunar surface for suitable building sites from 1963 onwards, and by 1973 had already put 116 people on the moon.

Other concepts were also discarded, such as Project Thor from the 1950s, which was revived in the 1980s as part of Brilliant Pebbles. The USA wanted to station hundreds of massive metal rods made of tungsten the size of telephone poles in low Earth orbits. If necessary, these were to be brought to a controlled re-entry and used as a balancing rod to obliterate targets on the earth's surface at several times the speed of sound on impact.

In reality for the military

However, other projects were realised by and for the military without this being widely known today. The first manned space stations, for example, were built and flown in the Soviet Union under the name Salyut, but were originally designed from 1965 as Almaz for purely military use. Initially, nine of these stations were launched from 1971. Two of them did not reach orbit, but the others were used under the names Salyut 1 to 7 until the mid-1980s, partly for civilian and partly for military purposes. The core modules of the legendary Mir space station and the International Space Station were or are modernised versions of these space laboratories.

There are also numerous examples of military backgrounds for seemingly civilian programmes in the field of satellite technology. The best-

known example of this is probably the US satellite navigation system GPS, which was developed by the Pentagon from 1973 as Navstar for the military and is still operated today by the US Space Force, a branch of the US Air Force. When a Korean airliner was shot down in 1983 after straying into Soviet airspace and killing 269 people, the USA opened up the use of GPS for civilian applications. Of the four major satellite navigation systems in existence today, only the European Galileo is primarily funded by the EU for civilian use; the other systems (US GPS, Glonass from Russia and Beidou from China) are more or less directly under the control of the military.

The list of space projects with a military background could be extended indefinitely, for example with the manned Russian combat station Polyus, which was lost in a false launch in 1987, or with the close relationship between the Hubble Space Telescope and the US spy satellites of the Keyhole type. Space travel has never been independent of the military. In fact, it was the military's pots of money that made civilian space travel possible in the first place, and also provided the real reason for the huge expenditure: Namely, the need for security.

The extent to which this could change as a result of the huge success of the US company SpaceX remains to be seen. The Falcon rockets, which now fly on a weekly basis, were co-subsidised in their early phase by high-priced launches of US military satellites, and the Starlink satellite network (which is also used by the military) has now been given a military offshoot called Starshield. A complete detachment from the military side looks different. And while Europe will only play a subordinate role in space for the foreseeable future and Russia is currently focussing on other areas, there is no need to say anything about the driving factors behind China's space activities. It is as it has always been: war is the father of all things.

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