

The Man behind Sputnik

By Colin Johnston, Science Communicator

Placing Sputnik 1 in orbit was a colossal achievement, yet the man responsible, Sergei Korolev, is not a household name. His story should be better known; his youthful dreams of flying into space were blighted by suffering but still came true in the end.

A teacher's son, Sergei Pavlovich Korolev was born in 1907 in the city of Zhitomir in present day Ukraine. In childhood, like most small boys he was fascinated by aircraft and flying. Unlike most, however, he carried this interest forward into adulthood, training as an aeronautical engineer and leisure-time glider pilot. By 1929, when he graduated from Moscow's Bauman High Technical School (Russia's MIT) he had developed an interest in rocketry and the possibilities of space travel.

He was not alone in this. The idea that one day soon people could travel to the Moon and beyond was in the air. In the 1920s and 30s, American, British, Soviet and German enthusiasts formed rocket clubs to carry out occasionally hair-raising experiments with liquid fuel rockets. Most infamous of these was Germany's VfR (Verein für Raumschiffahrt or Space Travel Society). The nucleus of this group, including Wehner von Braun, later developed missiles for the Nazi regime.

“Korolev led the development of a rocket-powered glider”

In Moscow, Korolev founded an organization called GIRD (Gruppa Isutcheniya Reaktivnovo Dvisheniya or Group for Investigation of Reactive Motion). This society's achievements are unfairly unknown in the West; along with other Russian rocket clubs it performed a series of increasingly ambitious experiments on liquid fuel rocketry.

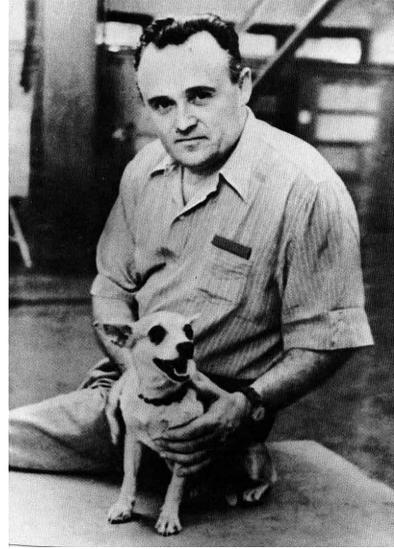


Image Credit: NASA

Sergei Korolev (in shirt) photographed in July 1954 with a dog that just returned to Earth after reaching an altitude of 100 kilometres in an R-1 scientific rocket.

Paralleling the VfR's experience in Germany, Korolev's GRID's success brought government attention; in 1933, the group was reorganized into the state-sponsored RNII (Jet Propulsion Research Institute) with Korolev as Deputy Chief of the institute. There Korolev led the development of missiles and of a manned rocket-powered glider.

This craft was never to fly though. In one of those horrific incidents so typical of Stalinist rule, Korolev was arrested on trumped-up charges of sabotage in 1938, and imprisoned in a series of brutal Siberian prison camps. The prison regime included forced labour in a gold mine and regular beatings from guards. Many of his RNII colleagues were also rounded up at the same time, most were executed, so Korolev was in fact one of the lucky ones.

Unsurprisingly, Korolev's health suffered in these terrible years and he never recovered from the experience. In late 1940 he and many other talented engineers in Soviet prisons were allowed to work on military projects from their cells. During this period Korolev helped with the development of the Tu-2 bomber, one of the great aircraft of World War II (and again almost unknown outside Russia).

Korolev's conditions improved further in 1944 when he was released on parole to use his expertise to investigate German military rockets. What he thought of this change in circumstances is not recorded, doubtless he was just glad to be free (or as near as one could be free in Stalin's Russia).

“the R-7 was a huge missile capable of delivering a nuclear warhead”

In October 1945, he was allowed to visit the now defeated Germany to observe Operation Backfire, a British sponsored demonstration of captured A4 rockets (the A4 is much better known by the nom de guerre V-2). Korolev was later involved in collecting captured enemy rocket hardware and technicians to aid Soviet missile research.

Initially the Soviets copied their former enemy's work, building replica A4s as R-1s and developing the more advanced R-2 and R-5. By the early 1950s Korolev was a rising star, leading the research organization responsible for long range rockets. Abandoning the now out-moded German technology, Korolev was developing the R-7, a huge missile capable of delivering a nuclear warhead to a target in the US. However, Korolev had nobler goals than facilitating Armageddon, he saw the R-7 (often referred to in older books by the NATO designation SS-6 Sapwood) as the world's first space rocket. As early as 1953 he suggested that his creation could be used to send a satellite into orbit. Aware of the American effort to achieve this, he was allowed to develop this dream with historic results.

As a reward, a jubilant Politburo gave Korolev extra funding to develop planetary probes and

manned space vehicles. The once despised prisoner had come a long way. He was also granted an official title straight from some 1930s sci-fi potboiler, he was the Chief Designer of Space-ships. His personal details were made state secrets; even his name was unknown in the West until after his death.

During the early 1960s, Korolev was eager to send a Soviet cosmonaut to the Moon. By a methodical approach he hoped to achieve a Soviet lunar landing before the Americans. The first flights of the Vostok spacecraft would prove that human space flight was possible. In 1961, Korolev's team had another brilliant success with the flight of Yuri Gagarin in Vostok 1. Vostok would be replaced by a more advanced multi-purpose craft, Soyuz. Meanwhile, the largest rocket ever built, the N-1 would be developed to boost cosmonauts to the Moon or launch mighty space stations into orbit. The future looked bright for Korolev's dreams of space conquest.

Sadly for Korolev things did not work out this way. His attention was diverted as he was pressurized by his superiors to develop space propaganda stunts, such as the risky Voskhod missions, to up-stage the Americans. Developing the Soyuz and N-1 was more difficult than anyone expected (the N-1 was eventually abandoned



Image Credit: NASA

Tribute to the Chief Designer This Soyuz launch vehicle has a portrait of Korolev painted on the external payload fairing. He would have celebrated his 100th birthday shortly before this rocket launched the Progress 24 vehicle in early 2007.

after several spectacular explosions). Finally Korolev became the subject of bitter rivalries in the Byzantine Soviet space bureaucracy. He may have overcome these problems in time, but sadly Korolev died in murky circumstances when a routine surgery went terribly wrong in 1966.

Korolev was married twice and had a single child, a daughter. Unusually for a Russian man of his time he was only a moderate drinker. In manner he could be cynical and unapproachable, but was respected by those who worked for him.

Today his contribution to space exploration is undoubted. The Soyuz spacecraft he conceived is still carrying people into space forty years after its first flight. The mighty R-7 proved too unwieldy and delicate to be a useful weapon and was rapidly replaced by more advanced missiles. As a space launcher it was as good as Korolev intended and it is still in service today as the Soyuz Launch Vehicle. More than 1700 of these have been built, more than any other launch vehicle. Korolev would be pleased with his legacy.