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**Donald C. Elder and Christophe Rothmund,
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Donald C. Elder, Series Editor

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Chapter 25

The History of the Foundation of the Soviet Cosmodrome Baikonur*

D. V. Shatalov[†]

Introduction

At the beginning of the 1950s there was a great need for the foundation of a cosmodrome for launching of ballistic missiles in space, because the resources of the Kapustin Jar cosmodrome did not satisfy the growing requirements of the cosmic industry.

In 1954, according to the resolution of the Soviet Government, a committee was assembled, and its aim was to find a place for building a new cosmodrome. Later, it would become known in the West as cosmodrome Tura-Tam. It was named after the railway station in the region of the cosmodrome. Its chairman was General-Lieutenant V. I. Voznjuk. The committee had to take into consideration the following factors:

1. For shots into space in the eastern direction, the start complex had to be closer to the equator.
2. Remoteness from populated areas was required, in order to avoid disasters, and to guarantee secrecy.
3. The presence of a railway, or other means for transporting equipment, building materials, components of rocket carriers, etc. was essential. Karmakcha

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[†] International Space School, Leninsk, Kazakhstan.

in the Kzil-Orda region in Kazakhstan turned out to be the most suitable place for these purposes.

The History of the Foundation of the Soviet Cosmodrome Baikonur

On February 12, 1955, according to a resolution of the Soviet government, it was decided to begin the building of Proving ground 15. Mitrofan Ivanovich Nedelin, the first Commander-in-Chief of strategic troops, had control of the building and foundation of cosmodrome Baikonur. Mitrofan Ivanovich Nedelin contributed much to the development of Baikonur. He selected the personnel, took part in the decision of building and test works. M. I. Nedelin annually spent 2-4 months at the cosmodrome, controlling the units, and accepting new objects.

The head of the building was Colonel Georgy Maximovich Shubnikov, later major-general of engineering-technical troops, and Honored Builder of the Russian Federation. Thousands of military builders worked under his guidance starting in the spring of 1955. The military builders had to build the cosmodrome in the shortest possible time. They worked in parallel on different projects day and night.¹

Simultaneously with the building they staffed the guidance center of the cosmodrome. On June 2, 1955, according to the Direction of the General Staff, the foundation of cosmodrome Baikonur was laid.

May 5, 1955, is the birthday of the town Leninsk—the administrative center of cosmodrome Baikonur. On that day the first building in the settlement of Zarja, as they called the future town, was solemnly laid.

General-Lieutenant of the artillery, Alexey Ivanovich Nesterenko, the commander of the legendary “Katyusha” during the Great Patriotic War, became the head of the cosmodrome.

For the fastest method of putting the cosmodrome into practice many of its units were formed in cosmodrome Kapustin Jar or in Moscow, and then they went to region “Taiga,” as they called the place of distribution for the future cosmodrome.

Many officers, getting assignments to the cosmodrome, worked on probation at the plants, design offices, and research institutes.

The first testers lived in very difficult conditions, in tents and earthen houses, the temperature was +40°C, and there was water-fuel. But, nevertheless, the cosmodrome grew very quickly, and by the end of 1955 the personnel included about 5,000 people. By that time they formed an autobattalion, a protection company, and an aviaunit.²

By the end of 1956, the cosmodrome was formed, and included the staff, board and two services. The building of constructions 11 and 12 was finished.¹

In December 1956, the first rocket was brought to the cosmodrome. On March 4, 1957, S. P. Koroljov signed “Technical task 11” in order to prepare the

launching of the first intercontinental ballistic rocket. This task was fulfilled on May 15, 1957. The rocket took off from the start complex, but in 103.6 seconds it broke to pieces and fell down 300-500 km from the start complex. But it was a success!

The testers went on with their work and prepared the second rocket "R-7" for launching. The second launching was in June and the third in July. All these launchings had accidents because the rocket had defects. This was taken into consideration and at last on August 21, 1957, another rocket was successfully launched.⁶

That is why S. P. Koroljov suggested an attempt to carry the first artificial Earth satellite into orbit. The testing of the first artificial satellite was done by Voskresensky and Nosov. The date of launching was October 4, 1957. The launching was successful, and the people and equipment worked very well. Some time later it was decided to launch an identical satellite, but there was an accident during the launching.

Over 100 testers were honored by the government for their excellent work on the launching of the first artificial satellite. Among them were Colonel-Engineer Nosov, Lieutenant-Colonel Ostashov, Colonel Vasiljev, the soldiers Gusev, Mineev, Bashkatov, Tishkin, and others.

In the second half of 1957 the start unit was formed for trials, with Colonel Maiskiy as its commander.

A month after the first launching, the testers of Baikonur launched the second artificial satellite, with the dog Laika aboard. A half a year later they launched the third.

In 1958 the testers went on with their work and completed the construction of rocket.

In October 1958 Major-General Gerchik became the head of the cosmodrome, because Nesterenko was transferred to the Ministry of Defense.

In 1959 the testers of the cosmodrome successfully launched the modified rocket "R-7." The next year, 1960, was very intensive: two rocket-carriers started from start ground 11. New start grounds were built and two start units were formed. Starting in June 1960 they began to test the rocket "R-16" on the test bench. On October 24, 1960 during the launch preparations there was an accident. As the result of the accident many officers and soldiers were killed. M. Nedelin was among them. General Gerchik was badly wounded, and after that Colonel Zakharov became the head of the cosmodrome.⁵ The successful launching of the "R- 16" took place in February 1961.

In 1960 the personnel of the test unit under the guidance of Maiskiy got a very important task: to prepare a manned spaceship for launch into space. Some launchings were successful and others were not, but step by step S. P. Koroljov, changing the construction, came up with a reliable rocket-carrier and spaceship.

In 1961 two successful launchings with dummies of humans and animals on board took place. And on April 3, according to a government resolution, it

was decided to launch a manned spaceship. On precisely that day S. P. Koroljov flew to Baikonur.

The future cosmonauts flew to the cosmodrome on April 5, and on April 7 they began to train in the spaceship "Vostok." On April 11, the rocket-carrier was at the start complex. On that day Yuri Gagarin had a meeting with the testers. The next day Gagarin started into space. After that great event 87 testers, officers, and soldiers were awarded medals and orders.

Beginning in 1961 the second start team began to conduct launchings. And at the beginning of 1962 the fourth test center was formed. It was formed for the testing and launching of Chelomey's rockets "UR-200" and "UR-500." Their launchings began in a year.

In October 1963, there was another accident at the cosmodrome, and as a result of a fire seven testers were killed.

Many testers remembered the middle of the 1960s because there was less secrecy around the cosmodrome. And in 1964, N. S. Khrushjov visited the cosmodrome; in 1966 a delegation from the French Republic with President De Gaulle also visited the cosmodrome. During these years the cosmodrome Baikonur contributed much to the development of the Soviet manned space program.⁵

The 1970s were also important for Baikonur. In 1971 they began to launch orbital stations, and later rocket-carriers for the "Soyuz-Apollo" program. In 1978 they began the launching of international crews.

The beginning of the 1980s was connected with the formation of a test center and test unit for the launching of the rocket-carrier "Zenit." The great achievement of Soviet cosmonautics of that time was the creation of the orbital station "Mir," and the space system "Energija-Buran."

In 1990 the personnel and the structure of the cosmodrome were reorganized. And now there are four Test Centers. The first Test Center is occupied with "Soyuz," "Progress," "Molnija," and "Kometa," and the rocket-carriers "Soyuz," "Vostok," and "Zenit." The second Test Center is occupied with "Cosmos," the Automatic Interplanetary station, the orbital station "Saljut," "Mir," and the rocket-carrier "Proton." The third Test Center is occupied with the rocket-carriers "Energija," "Energija-M," and "Buran."⁷ The fourth Test Center gets and works up telemetry information. It includes measuring posts "Saturn" and "Vega."

Cosmodrome Baikonur Today

Today cosmodrome Baikonur is the largest scientific-technical complex. It is situated in the desert in the central part of the Kzyl-Orda region. Annually, nearly 40 space rockets and about 10 intercontinental ballistic rockets start their way into space from Baikonur.

On the grounds of the cosmodrome there are start and technical positions, communication services, the repository for rocket-space equipment, rocket propellant, an oxygen-nitrogen plant—one of the largest in the world—and other materials/components.

In the cosmodrome structure there are five measuring posts, a computer center, and also nine measuring posts on the flight route of rocket-carriers in the territories of Kazakhstan and Russia.

The population of Leninsk and the inhabited small towns of the training centers varies from 120,000 to 150,000. It depends on the amount of work carried out by the cosmodrome personnel.

All these areas are traditionally divided into the “tenth ground” (the town Leninsk), the “left” and “right” wings, and the “center.” They are connected by a macadam road (1,200 km), railway lines (500 km), and a communications line.

In the “tenth ground,” the infrastructure of the town is rather well developed: there is airdrome “Krainiy,” a thermoelectric power station, a branch of the Moscow Aviation Institute and the plant “Progress” (the city of Samara), cinemas, a swimming-pool, a TV center, communication service, and places of interest, such as parks and squares.

The “Left” wing is 70 km to the northwest of Leninsk. There are start and technical complexes for the rocket-carriers “Cyclone” and “Proton,” and for the spacecraft which they carry into orbit. All this is situated compactly in one area. The rocket-carrier itself is exceptionally reliable. Created under the leadership of academician Yangel in the middle of the 1960s, it doesn’t fail even today. The start complex is convenient to operate through automation. In the 1970s they launched sputniks with nuclear power plants, and it did harm during the rehearsals. Nowadays they are not used.

The main rocket-space complex of the “left” wing is “Proton.” It consists of two start complexes with four launching arrangements, a filling-neutralization station, and two assembly testing buildings. 10,000 people can live in the small, inhabited town.

The start and technical complexes for the rocket-carriers “Soyuz,” “Energiya,” and the orbital spaceship “Buran” are situated in the “center.”

Thirty km away from Leninsk there is the famous “second ground” with Gagarin’s start complex, two assembly-testing buildings, cottages for guests, hotels, a cosmonautics museum, and the houses of S. Koroljov and Y. Gagarin. From here they began to conquer the Universe.³

Nearby, at the N-1 rocket place, there are surface elements of the space system “Energiya-Buran.” This is a complicated surface complex; its area is more than 10 km². It consists of 50 technological and 200 technical systems.

Two railway lines go to the start complex. These railway lines carry the space system to the start complex. Start complex systems are automated; the commands are given from a command post, which is situated 5 km away. This is a building with the largest (100x50 m) central hall. Besides the start system,

there is the universal test bench-start for launching the space system “Energiya-Buran.” It was built earlier than the launching arrangement. The landing complex is situated 12 km to the northwest of the start complex. The take off and landing strip is unique: its length is 4,500 m and its width is 84 m, and the thickness of the road surfacing is half a meter.

The technical complex of the “Energiya” and “Buran” consists of exploiting and production zones. They are situated 40 km away from Leninsk and 5 km away from the start complex. In the exploiting zone there is an assembly-filling building, filling station, and pyrotechnic position, while in the production zone there is an assembly-testing building for the rocket-carrier and the orbital spaceship. All these buildings are of space dimensions. For example, the assembly-testing building of “Energiya,” which was built for the rocket-carrier “N-1,” is the largest building at the cosmodrome. Its length is 240 m, the width is 190 m, and the height is 47 m. Some times nearly 2,000 people work there. The assembly-testing building of the “Buran” is large too. Its length is 225 m, the width is 121 m, and the height is 30 m. Besides this there is a test bench for dynamic testing—a building of 100 m height.⁴

The “right” wing is 50 km southeast of Leninsk. It is the second start complex, which is the analogue of Gagarin’s start complex. It began to function in 1960, and it was perfected: the foundation pit became smaller, and the assembly-testing buildings and inhabited zones were brought nearer to the launching site of the rocket-carriers and spaceships. They prepared spaceships mainly for interplanetary flights, such as the “Venera,” “Mars,” “Vega,” and made nearly 330 launches from there. About 10 km to the south of this start complex there is the “Zenit” complex.

The Ancient Legends About Baikonur

It is a remarkable fact that one of the branches of the Great Silk way, which connected the Ancient East with the countries of the West, passed near the territory of the cosmodrome Baikonur. The archaeological finds on the territory of the cosmodrome tell about the existence of a great civilization there in ancient times.

Legends say that many years ago there lived a musician and composer, who played the Kobiz (musical instrument). That was an epic hero of the Oguz tribe Korkut. He lived in different parts of the world and, trying to avoid death, decided to live in the center of Earth—on the shore of the river Sir-Darja. He was also buried there in a mazar (burial vault). And in 1980 a monument to the legendary Korkut was put in the Karmakcha region, where the cosmodrome is situated now. The river Sir-Darja is also on its territory. Different tribes lived there for a long time. They built towns and were busy with handicrafts, farming, and cattle breeding. Sir-Darja in Kazakh means “Secret river.” The ancient

Greeks called it “Jaksar,” or “Pearl River.” The Arabs called it “Seikhun-Darja.” Now there are some monuments, which tell about the existence of the ancient civilization.

In 1783 the Kazakh people joined with Russia. Later, the first forts, inhabited by the Russian people, were built in Kazakhstan. For example, the town Kzil-Orda was known as Fort Ak-Mechet. This year Kzil-Orda will mark its 177th anniversary. In 1853, after it was seized by Russian troops under the guidance of General Perovskiy, it was renamed in Perovsk. In 1925 it was decided to move the capital of Kazakhstan from Orenburg to Perovsk, and it was renamed Kzil-Orda, which means “Red capital.”

At the beginning of our century, in 1905, the railway line “Orenburg-Tashkent,” crossing the territory of the future cosmodrome, was built. The railway station was named after the mazar “Ture-Tam,” which means the house of Ture. At first cosmodrome Baikonur was known as cosmodrome Tura-Tam. Here is the history of that name. Ture was a famous and noble man. After his death he was buried on the shores of Sir-Darja. People called that place “Sacred ground,” or “Ture’s ground,” or “Ture’s house”—which in Kazakh is “Ture-Tam.” The sacred mazar was a place of pilgrimage.

Later, the people made a burial ground there. Nowadays this burial ground is situated near the hotel “Cosmonaut” in Leninsk. It is a place of worship for many people. The burial ground is under the protection of the state now.

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