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**Donald C. Elder and George S. James
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Chapter 22

The History and Formation of Kapustin Yar, the First Soviet Cosmodrome*

D. V. Shatalov[†]

The history of the first Soviet rocket test range, Kapustin Yar, has its roots in the final period of the Great Patriotic War. In Germany, from September 1945 until January 1947, a group of Soviet specialists-rocketeers investigated German scientists in the field of rocketry (V-1 and V-2 missiles). The purpose of these studies was to design large liquid ballistic missiles in the U.S.S.R. Thus, the Soviet Union was in need of its first rocket test range for ballistic missiles.

On May 13, 1946 the Soviet Government came to a decision to build the first specialized rocket range, which was called the Fourth State Central Range (SCR-4). The group of specialists was exploring seven more suitable regions from the standpoint of economics, meteorology, hydrology, communications, the development conditions, building resources and so on. The final decision was made by the Head of the State Iosiph Stalin. The rocket range was to be located near the village of Kapustin Yar, Astrakhan region, the Lower Volga.

Lieutenant-General of the Guards, V. I. Voznjuk was assigned to be the first range commander. The first rocket test unit was formed on the base of the

* Presented at the Thirty-First History Symposium of the International Academy of Astronautics, Turin, Italy, 1997. Note: Photos suitable for publication were not available for this paper. For those wishing to view the photos which were originally presented in this paper, it is suggested that the reader try and locate a copy of the International Academy of Astronautics preprint (IAF-97-IAA.2.2.01).

[†] International Space School, Baikonur, Russia.

92nd Gomel Guards Mortar regiment. It was one of the best regiments during the Great Patriotic War.

The History of Building the Cosmodrome

In August 1946, in conformity with a resolution of the Council of Ministers, a State Commission was set up to study and unite into a whole the experience of creating rockets in Germany.

The head of this commission, the Minister of Armaments D. Ustinov, took a direct part in the creation of an industrial and experimental base for rockets, nuclear weapons, and space technology.

At the same time in the Soviet occupation zone of Germany a "special institute" was opened. It was named "Nordhausen," and a group of Soviet specialists began to work there. The institute did a lot of work to restore the technical documentation, laboratory, and bench tests involved with the A-4 rocket units. By March 1947 this institute had finished its work. To perfect rocket assembly in 1947, some plants assembled the test batch of A-4 rockets and the accompanying land equipment.

On May 13, 1946, the Council of Ministers came to the decision to give the Central State Proving Ground of the Ministry of Armament the responsibility for the direct preparation and launching of rockets. The head of the Proving Ground was Lieutenant General Voznjuk. During World War II he had had experience with using rocket artillery. He had some deputies: Major General P. N. Kulikov of the tank corps—the Chief of the Political Department; Colonel Slepakov—Chief of Staff; Major General Chezlov—the Deputy for the Army's logistical support; Colonel Grigorjan—the Deputy for Building; and Colonel Volodin—Head Engineer.

The group, headed by General Voznjuk, did a lot to choose the place for the proving ground.

During a very short period they explored several large areas in the territory of our country and, studying them thoroughly, got material on economics, hydrogeology, meteorology, communications, access, and development perspectives in every region. The results were reported to the Committee on Jet Technology in July 1947. By a resolution of the Council of Ministers on July 27, 1947, the place on which to set the proving ground was chosen near the village of Kapustin Yar, in the Astrakhan Region.

The formation of the proving ground had been finished for the most part by July 1947. In August special boards and units of the proving ground moved their base of operations there.

The main aim of the proving ground was to test rocket technology for all branches of the Armed Forces. Accordingly, there were several boards: (1) for testing rockets for land forces and anti-aircraft defense units; (2) for Military

Air Forces; and (3) for Military Navy Forces. There were units for servicing and logistical support.

The proving ground staff had a formidable task to build ignition and technical stations, rocket bench test stations, storehouses for special fuel, and lay out the air lanes and land regions for the landing of nose cones (the village of Novaya Kazanka).

The building of the proving ground was under the guidance of the State Commission, the members of which were famous people: Minister of Armament D. Ustinov; Marshal of Artillery Jakovlev; Marshal of Engineer Troops Vorobjov; and Major General A. Sokolov, the head of the 4th Board. The building of the proving ground was carried out by the 12th Engineer Building Verkhnedneprovskaya Red Banner, awarded A. Suvorov's Order Brigade, the 2nd Engineer Building Simpheropolskaya Red Banner Brigade, and the 14th Engineer Building Nickopolskaya Red Banner, awarded Boghdan Khmel'nitsky Order Brigade.

The people were working all day around the clock. That's why all the objects on the proving ground were built in the established time.

In August 1947 the special brigade had come to the place of the proving ground disembarkation on a special train, where there were laboratories, land equipment, and instruments for tests, and also a training rocket for staff preparation. This allowed them to prepare and begin the testing of the first ballistic rocket.

All specialists working there were divided into two parties—ignition and technical. The technical part had several sections: independent test section; horizontal test section; and assembly section. The other part consisted of: the engine section; ignition section; and building section.

This rocket was successfully tested at the bench test, inspected at the technical position, and later was brought to the ignition complex. The first launch of a single-stage A-4 ballistic rocket took place on October 18, 1947. The operation was controlled from an armored car, which was situated not far from the ignition complex.

The testing of the trial rocket in the laboratory and at the proving ground showed that its construction was imperfect, and the equipment was bulky and intricate.

The history of Rocket Technology Testing

The first long range ballistic missile was launched from this range on October 18, 1947. But it was a captured missile. The missile flew over 207 km. It was called the R-1.

On October 10, 1948, there was a successful launching of an R-1 missile, designed and manufactured with domestic materials at Soviet plants.

After that, other rockets such as the R-2, R-5, P-5, R-11, Vertical, R-12, R-14, Cosmos, Intercosmos, Pioneer, their modifications, and others we are going to report on in this paper were tested there.

It is interesting to note that the flight preparation for the world's first artificial satellite was made by the engineers at Kapustin Yar, but it was launched from the Baikonur cosmodrome on October 4, 1957. That is why the Baikonur cosmodrome and Kapustin Yar were awarded the same medal by the Presidium of the Academy of Sciences.

The first dogs were also launched into space from there. Among the 48 dogs were the world famous, Belka, Strelka, and so on.

On March 16, 1962, the launch vehicle 63S1 successfully lifted off from Kapustin Yar. The Earth artificial satellite DS-2 went into orbit. It was the first satellite of the Cosmos series, and was called Cosmos-1. That event may be regarded as the space birthday of the Kapustin Yar test range.

On October 14, 1969, after the successful launch of the first international satellite Intercosmos-1, Kapustin Yar became an international cosmodrome. Later the Indian satellites Aryabhata and Bhaskara, the French satellite Sneg-3, and many others were launched into space.

On September 21, 1974, the Pioneer missile was tested at the test range. In the West it became known as the SS-20 "Danger of Europe." And on August 28, 1988, foreign visitors from 45 countries came to Kapustin Yar and were present at the destruction of the first 3 missiles of that series. Later 619 of these dangerous combat missiles were destroyed in conformity with the Agreement.

There is another interesting fact. In the summer and autumn of 1958 the head of the Soviet Government, Nikita Khrushchev, ordered the supreme organs of military, state, and party power to get military knowledge about rocket technology at Kapustin Yar.

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