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25th ANNIVERSARY OF THE
GAGARIN COSMONAUT TRAINING CENTER

L. Goreglyad and G. Shonin

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**25TH ANNIVERSARY OF THE
GAGARIN COSMONAUT TRAINING CENTER**

L. Goreglyad and G. Shonin

January 11, 1985 was the 25th anniversary of the establishment of the Yu. A. Gagarin Cosmonaut Training Center. During this time, Zvezdnyy Gorodok (Star City), famous throughout the world, grew from a virtually empty site near Moscow. By readers' request, the editors of this publication have prepared their correspondents' interviews with specialists and pilot-cosmonauts, who tell of the development of the Cosmonaut Training Center imeni Yu. A. Gagarin. Today we present interviews with retired Major General of Aviation L. Goreglyad and USSR pilot-cosmonaut Major General of Aviation G. Shonin, both Heroes of the Soviet Union. /40*

Major General Goreglyad: Star City. Today there is hardly a place on this planet where this name is unknown. But 25 years ago it existed only in dreams, and even then of only a few people.

In January 1959 the Central Committee of the CPSU and the Council of Ministers of the USSR issued a decree on medical-biological training of men for spaceflight. Immediately there arose a multitude of questions related to solving this problem. Finding the answers, or more precisely, solving them, was the job of a group of specialists created by the decision of the party and the State. Where were these specialists to begin work? By definition, from which occupations should future candidates as cosmonauts be taken?

Long ago, disease was considered one of the greatest dangers to mankind. But regardless how serious it was, doctors always came to the rescue. They have risked their lives more than once to save the sick. History knows more than one example when some *Numbers in parentheses indicate pagination of the foreign text.

deliberately infected themselves to test the effect of new medicines or to discover how to treat people. Medical people felt a doctor should have been the first to experience space. As early as 1956, when, after a series of biological experiments on geophysical rockets, Sergey Pavlovich Korolev proposed to send a man into suborbital flight, doctors were the first to support his idea. On his desk were applications from A. Genin, I. Kas'yan, A. Seryapin, Ye. Shepelev, and Ye. Yuganov.

Aerospace engineers at that time could not boast of their experience, but they designed the first spacecraft and knew its layout better than anyone else. And, of course, many of them dreamed of testing it in space. Even the Chief Design Engineer considered it. So at the first opportunity, he sent one of his own designers -- K. Feoktistov -- on a flight.

Military fighter pilots were the best prepared for spaceflight. They fly at high altitudes in special suits and know what G-forces and hypoxia are, as well as how to jump with a parachute. More often than anyone, a fighter pilot has to deal with situations producing great emotional stress and requiring fast, accurate reaction, will, courage, resourcefulness, and dedication. They know the theory of flight, piloting and navigation equipment, and how to operate communications equipment. Therefore, it was decided to train fighter-pilots as the first cosmonauts. At that time I was named General N. Kamanin's assistant.

But who would train cosmonauts? Since the question was, "Can a man live in space?", the answer was self-evident: "Doctors." It was they who had been struggling with this problem for more than a year. I remember Vladimir Ivanovich Yazdovskiy. He not only got to the root of the medical and biological problems of manned spaceflight, but was the first in our country to begin solving them in practice and then studied right along with other specialists. The certificate accompanying the large gold medal he received as laureate of the International Aviation Medicine

Academy read, "To Professor V. Yazdovskiy for unique experiments which proved the feasibility of manned spaceflight and for successfully carrying out the first manned space flights".

These experiments began on 22 June 1951 when geophysical rockets with the dogs Tsygan and Dezik on board were launched to an altitude of 100.8 km. Dogs and other animals were studied for the effect of spaceflight factors on a living organism, equipment was developed to record and monitor the physical condition of the subjects and the atmosphere which was created in the small spaces. Several animals flew twice and there was a dog that flew four times. The results were quite important, because they made it possible to study subsequent reactions of animals to the effect of all spaceflight factors. When free fall was studied, a rescue system was created which included catapulting and parachuting an animal in a spacesuit -- the prototype of the landing system in the first spacecraft, Vostok. This stage of research ended when the nose cone of a rocket was launched to an altitude of 450 km. Actually we were already prepared for suborbital flight, which the American astronauts A. Shepard and V. Grissom accomplished in May and June, 1961.

The next stage of research began after the first artificial Earth satellite was launched. The Central Committee of the Communist Party asked scientists and designers to mark the 40th anniversary of the Soviet regime with a new scientific achievement in space. Then, literally in a month, a program was devised and equipment developed for Layka's flight. As a result, we obtained unique data and our country firmly established its primacy in space research.

Soviet scientists and designers were on the verge of a program for manned flight into the Universe. The agenda included creating a spacecraft and training men to fly in it. The most difficult task during spacecraft development was creating a retrorocket. There was some store of knowledge available in terms of other systems, but the means of returning from orbital

flight was a complete blank as far as the scientists' and designers' experience was concerned. Even firing the retrorocket in zero-gravity was a problem. Nevertheless, thanks to the exceptionally dedicated efforts of the staff of the A. Isayev Experimental Design Bureau, a retrorocket was ready in May 1960, and in 3 months the first living beings, the dogs Belka and Strelka, returned safely to Earth from a spaceflight.

The animals survived entry into orbit, zero-gravity flight, and return to Earth. But could a man survive this? By this time, scientists knew that illusions of the spatial position of a body, vertigo caused by a change in the functioning of the pressurization equipment, disruption of motion coordination, as well as blood congestion in the head, were possible in zero gravity. However, all these theoretical assumptions required testing. If they were confirmed, then ways to prevent them would have to be found. Apparatus creating zero gravity on Earth were immediately eliminated, since they simulate that aspect of spaceflight for several seconds only. A MiG-15 training- /41 fighter was adapted to train cosmonauts.

Other little-known factors of spaceflight might include radiation belts discovered in 1958, solar radiation, and meteor hazards. They could not be simulated on Earth and we relied primarily on the scientists' theoretical calculations. Aviation practice had some experience with reduced barometric pressure and G-forces and we took full advantage of it. A special spacesuit and life-support system were created for the cosmonauts. And pilots were already acquainted with G-forces with a centrifuge, which was recommended for training cosmonauts.

The standard means of testing equipment for manned spaceflight became catapulting in a spacesuit, done in conditions close to those in which cosmonauts on the Vostok spacecraft returned to Earth.

Thus, step by step, technology for the first cosmonaut flights was prepared.

At the same time, and perhaps even a little ahead of the engineers and testing personnel, candidates for cosmonauts were selected and a training program developed. The staff of the Central Aviation Hospital -- Ye. Fedorov, I. Bryanov, M. Vyadro, and the director of that institution, A. Usanov -- was of great help in this work.

The primary direction of our work became creation of a base and selecting personnel for training cosmonauts. Relationships were established with industrial organizations, scientific-research institutes and higher educational schools across the country to solve the problems confronting us more or less scientifically. At the same time, we became acquainted with the people and looked for suitable candidates.

The director of the Cosmonaut Training Center had to be the central figure in this new affair. There were several candidates for this position, but we decided on a physician, Evgeniy Anatol'yevich Karpov. And we were right. His assistants were most charming persons, the ideal inspiration for the first cosmonauts, Communist Nikolay Fedorovich Nikeryasov; the talented pilot, manager of cosmonaut flight training, Yevstafiy Yevseyevich Tselikin; head of the in-classroom training department, Vladimir Vasil'yevich Kovalev and head of the MTO department, Anatoliy Ivanovich Susoyev. The first teachers the cosmonauts had were: Professor V. Yazdovskiy and physicians subordinate to him: A. Genin, O. Gazenko, A. Seryapin, N. Gurovskiy, F. Gorbod; specialists from the S. Korolev design bureau: B. Raushenbakh and K. Feoktistov; Honored Sports Master of the USSR, parachutist N. Nikitin and the young, but demanding athlete, B. Legon'kov, who learned the basics of space science along with their students.

Studies began in Moscow in a two-story building at the former

Central Airport, but after several months they were continued on the outskirts of Moscow. Today it is easy to understand how right we were in relocating the Training Center out of Moscow. Every minute hundreds and thousands of visitors and autograph hounds would visit it. The initiative for the move came from Vasiliy Yakovlevich Klokov. A committee, which became familiar with the proposed region, approved it and we began to undertake the transfer at our leisure. Soon all required formalities were fulfilled and the Cosmonaut Training Center was permanently established.

Hero of the Soviet Union, Major General of Aviation G. Shonin: I remember one autumn day in 1959, already so long ago. It was Monday. Several pilots in our squadron were summoned by the commander. We didn't know the reason. I remember down to the finest detail how I spent that Monday, what I did, where I was and with whom. Apparently everything was in order. At staff headquarters we met pilots from a neighboring area.

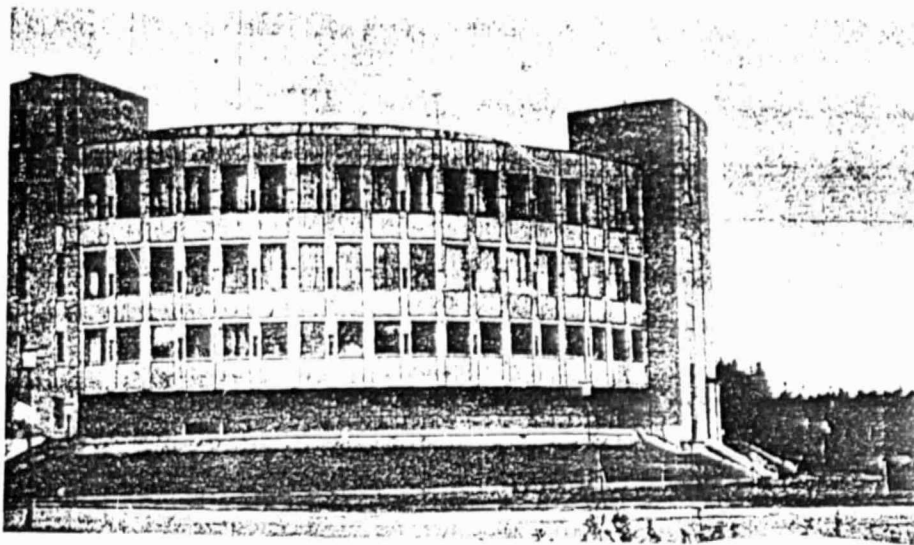
"Zhora, did they just pull you out of the river or something?" Yuriy Gagarin greeted us cheerfully.

He too had been summoned by the commander.

We all approached the office door together. In such instances there are no heroes. Therefore we amicably entered the room and announced our presence.

"I don't particularly need you," the commander surveyed us in a glance. "Go to the next room. Visiting comrades will talk to you there."

This was something else again! So once again, as a group, we tumbled into the adjacent room. However, we were politely asked to leave and enter one at a time.



Hydrotesting facility in Zvezdnyy Gorodok

...Then it was my turn. I went in. Behind the desk sat two older men. Both lieutenant-colonel physicians in naval uniform. They asked me to sit down and began to question me. The conversation covered ordinary topics: how did I like the service, how I fly, am I used to transpolar flight, what do I do in my spare time, what do I read, and so on. They were interested in how I handled my party obligations.

"We may meet again," one said when we parted.

The news that the doctors were interested primarily in young pilots quickly spread throughout the city and the uncertainty with which each meeting ended gave rise to a variety of rumors.

Two days later the next round of interviews began. Not all pilots from the first group were invited. The interviews themselves were more specific. After they had become acquainted in detail with my flight training, they asked if I would want to master a new type of craft. I was immediately disappointed. At

that time many helicopter units were being created and, naturally, they needed pilots. Helicopters then were not very popular with aviators.

"I am a fighter pilot," I answered. "I specially chose a training school where they teach you how to fly a jet, not..."

"But you don't understand. We are talking about long flights, about flying around the Earth in a rocket."

"Around the Earth?" I said, taken a back, and, then understanding what was going on, I said quickly, "I agree, I agree to fly around the Earth in whatever you like. Even on Baba-Yaga's broom. But let it be today, well, not today, but tomorrow. I can't go long without flying. I am a pilot."

"You don't have to worry about that. Manned spaceflight is just around the corner. But you have to undergo very serious medical examinations in Moscow. If you cannot pass even one test, your efforts will have been in vain. Does this bother you?"

"I'm ready!"

"Then expect a call from Moscow. Good luck!"

I got out onto the platform of Leningrad Station. It was my first time in Moscow and I didn't know the city. A taxi driver helped me find the Central Scientific-Research Aviation Hospital. From the reception area, they took me to the "House of Lords", as my predecessors had named it. There were about twenty cots in a large room. It was evening and the "patients" were getting ready for bed. Questions poured forth: Who was I, what was my background, where did I go to school, what airplanes had I flown. There was not one fellow countryman, schoolmate, or even a common acquaintance there.

They began to fill me in on things. After I'd gotten exhaustive information on the methods and results of the selection, I stayed awake for a long time, tossed and turned, and thought about my fate. But there was nothing to doubt or worry about. We were monitored and examined as never before in our yearly special medical checkups. /42

But who then could have said what the requirements would be? Now we know that they were overestimated twofold, then threefold. Out of fifteen men, an average of one passed all stages of examination. There were those who were barred from any flight whatsoever. And who could guarantee that you wouldn't end up the same way? Therefore, it wasn't surprising that my new acquaintances included young men who, during screening, refused further examination and returned to their former assignments. However, for the sake of the future, we had to risk the present - the occupation of pilot, the right to fly.

I awoke in the morning with a heavy head and decided to try my luck. I underwent examination nearly all day. What they didn't do! As the press justifiably wrote, the first rank passed through "harsh and cruel screening."

After dinner we usually met in our "palace." We joked, told funny stories and tall tales. When we'd had enough, everyone became silent. There was a pause. Growing serious, the young men each recalled episodes from his own life, like buddies.

Time passed. By the middle of December the "House of Lords" was completely empty and I, left alone, moved to another room. In the time I had between examinations, I wandered the lanes of the snow-covered park, remembered the young men, and in the evenings hastened to our improvised "Interesting Encounter Club". For a week and a half, its chairman was General I. Kozhedub, hospitalized as he said for a "little checkup of his body."

On December 30, exactly 40 days later, the committee accepted me as suitable for work in the special group. This is more or less how they screened us young fighter-pilots from various aviation units of the Air Force, Antiaircraft Defense, and the Navy.

Nearly bursting with joy, I hurried to my home squadron to greet the 1960 New Year with my friends. A day later I was already in the unit and that day I met Yuriy Gagarin. Now we had our own secret. We discussed the future, still not quite clear to us, for a long time.

At the end of February, those who had made the grade were called to Moscow. There was one more brief examination. When it was over, the Chief Marshal of Aviation, K. Vershinin, received our group of 20 men. This was the start of a long and difficult road.

The next day, with orders to quickly settle accounts with our units and be in Moscow for testing, we returned to our regiments. These orders bore the signature "N. Kamanin." This was the first time we had seen it. Then for the next 12 years, this signature was on the main documents which decided all work to establish the Cosmonaut Training Center.