

VLADIMIR FEDOROVICH UTKIN — DESIGNER AND SCIENTIST

The list of names of outstanding scientists of the XXth century who glorified mankind rightly includes the name of Vladimir Fedorovich Utkin, Doctor of Technical Sciences, Professor, Member of the Russian Academy of Sciences, Member of the National Academy of Sciences of Ukraine, Member of the International Academy of Astronautics, former President of the K. E. Tsiolkovskii (Tsiolkovsky) Russian Academy of Space Exploration, Honorary Member of the Russian Academy of Rocket and Artillery Sciences, twice Hero of Socialist Labor, Lenin and State Prize Winner, and bearer of many orders and medals for services in labor and battle.

A bronze bust of him, one of the pioneers of space exploration, was erected in his home town of Ryazan still during his lifetime. As for the monument of worldwide recognition and respect, he erected it himself by his outstanding achievements in the field of space-rocket technology.

Vladimir Fedorovich Utkin was born in 1923 in the township of Pustobor of the Ryazan Region. In 1941, he finished high school with an excellent graduation certificate and practically from the beginning of the Great Patriotic War till its victorious completion he fought in the army to defend the freedom and independence of our Motherland. While in the army he fought in battles all the way from the Volkhov River to Berlin and took part in the hostilities on the Volkhov, the 3rd Belarussian, the North-Caucasian, and the 4th Ukrainian fronts.

After the end of the war, he entered the Leningrad Military Mechanical Institute in 1946, from which he graduated in 1952. He was qualified as a mechanical engineer.

In July 1952, he began to work at the "Yuzhnoe" Design Office in Dnepropetrovsk. It is from this time that the first very important stage in his creative activity began. In 1967, he was appointed first deputy chief and chief designer, in 1971 — chief and chief designer, and in 1979 — chief designer and chief of the Design Office. From 1986 Vladimir Fedorovich Utkin was director-general and chief designer of the "Yuzhnoe" Science and Production Association.

During almost 40 years of work at the "Yuzhnoe" Design Office, Utkin rose from an engineer to an outstanding scientist and designer, an active advocate of scientific and technological progress, who directed all his creative energy toward solving very complex problems of space-rocket technology.

Under his leadership, four strategic missile systems that ensured the parity of domestic nuclear missile forces in the world and allowed the creation of a reliable nuclear missile defense of the country were developed and added to our armory. Among the engineering development products of the Design Office are the unique SS-18 strategic silo-based missile system called Satan in the USA, which is currently the best in the world, the S-24 railway- and silo-based solid propellant system, and the highly efficient environmentally





At V. F. Utkin's bronze bust in Ryazan are Rector of the Ryazan State Radio-Engineering Academy V. K. Zlobin, cosmonaut V. V. Kovalenok, U.S. astronaut Joe H. Engle, Academician A. A. Boyarchuk, V. F. Utkin, N. A. Trofimov, U.S. astronaut Thomas P. Stafford, A. F. Utkin, and Stafford's wife.

safe Zenit carrier rocket (launcher) with a fully automated start. In a bundle of side blocks, the first Zenit stage became part of the carrier rocket of the Energiya–Buran reusable (shuttle) space system. Today Zenit is the main carrier in the "Maritime Start" International Project.

In the field of space exploration, various defense and research-purpose satellites were realized. In total, more than 300 spacecraft of the Kosmos family developed by the "Yuzhnoe" Design Office and making up a substantial part of the total number of satellites were put into orbit.

V. F. Utkin was an active participant in work in the field of international cooperation in the exploration and mastering of outer space. The implementation of the vast "Interkosmos" Program that made a significant contribution to the joint exploration of near-earth space by scientists of various countries was a remarkable event. The "Arcade" Project was also realized using the Oreol satellite in cooperation with French specialists.

Being the creator of formidable weapons, V. F. Utkin, as chief designer, performed a great amount of work on the use of defense research and development products in the interests of science and the national economy and on the transition to conversion research and development projects: "It is my conviction and hope that we have an increasingly greater understanding of the need to think less and less of nuclear weapons and combat missiles and to pay more attention to the human concerns and anxieties that are still so numerous on earth. Our minds should be switched to the solution of problems common to mankind," he said at a function in memory of Academician V. S. Semenikhin. He constantly put into life this characteristic principle of

his work. Thus, on the basis of the SS-9 combat missile the Tsiklon converted carrier rocket, designed for putting into orbit medium payloads, was developed. The Kosmos-1500 satellite was used to lead out convoys of ships stuck in the ice in the East Siberian Sea (Vostochno-Sibirskoe More) which made it possible to save hundreds of millions of rubles. The Kosmos-1500 also became the progenitor of the widely known series of Okean satellites ensuring a significant increase in the safety and efficiency of high-seas navigation.

The strategy of designer and scientist V. F. Utkin was to find alternative scientific and engineering solutions at minimum cost and to establish close cooperation with cooperating enterprises, design offices, organizations of the Academy of Sciences, and the Ministry of Defense.

The "Yuzhnoe" Design Office and, personally, V. F. Utkin maintained close creative and production ties with representatives of the Central Scientific-Research Institute of Mechanical Engineering. The cooperation of the scientists of the Central Scientific-Research Institute of Mechanical Engineering with those of the Design Office in the creation, refinement, and trials of space-rocket technology products made it possible to promptly solve in the shortest time many emerging technical problems and to reduce the time of creation of products. V. F. Utkin personally knew many scientists of the Institute due to their joint work.

From 1990, V. F. Utkin was director of the Central Scientific-Research Institute of Mechanical Engineering of the Russian Space Agency. At this time, the second very important stage in Utkin's work begins. Relying on the powerful team of scientists of the Institute and showing consideration for its history and traditions, he immediately plunged into the life of the Institute, actively familiarizing himself with the employees, the subjects of research and the structure of the Institute, and also with the experimental base, getting to the heart of the matter in detail.

V. F. Utkin's outstanding talent as an organizer of research, his inexhaustible energy and capacity for work, his immense prestige as a designer and scientist, and his ability to forecast forthcoming coming events made it possible at this time of difficulty for the country to preserve the scientific potential of the Institute and its main research areas and to remain the leading organization of the country in the field of space-rocket technology.

Vladimir Fedorovich Utkin took an active part in the reorganization of the administration and management of the space-rocket industry and its restructuring under new economic conditions. Under his scientific leadership and with his direct participation the Federal Space Program of the Russian Federation for the period of up to 2000 was developed and implemented. The Federal Space Program up to 2005 was developed and approved by the decree of the Government of the Russian Federation.

Under his supervision as the chief designer, scientific investigations and research and development work to ensure the creation of experimental special-purpose aircraft were conducted for the first time in the Institute's practice and are being conducted today. Large-scale work has gotten under way on conversion research subjects (environmental problems, monitoring of the residual life of lock gates, etc.). It is difficult even to enumerate the aspects of the enormous multifaceted work which Vladimir Fedorovich performed in that period. He published over 30 papers. He repeatedly made brilliant statements on major scientific and technical problems at Russian and International forums. He demonstrated the fundamental possibility of a short-term forecast of an earthquake using space devices on the basis of observation of anomalous electromagnetic and plasma effects manifesting themselves in the near-earth space on the eve of a strong earthquake and being its short-term precursor. Much work has been done by Vladimir Fedorovich within the framework of the functioning of commissions (he was their chairman) to determine the causes of emergency situations with space-rocket technology products. During the same period of time, he took part in the organization of scientific and technical forums and meetings and headed the K. E. Tsiolkovskii Russian Academy of Space Exploration. Simultaneously, he continued to devote a lot of time and energy to international cooperation in the field of outer space. In accordance with a decision of the Russian-American Government Commission on economic and technological cooperation, a coordinating consultative-expert board of the Russian Space Agency for programs of scientific and applied research and experiments on manned spacecraft was set up in

1994 under the chairmanship of V. F. Utkin by a joint decision of the President of the Russian Academy of Sciences and the Director-General of the Russian Space Agency. In conjunction with the Special Commission of the NASA Consultative Committee under the chairmanship of Lt. General of the U.S. Airforce Thomas Patten Stafford, the "Utkin–Stafford Commission" implemented mutual control over the problematic issues of setting up an International Space Station and scientific and technical support in key points connected with the creation of the station. Applications (about 360 proposals) for scientific research were analyzed and selected by competition. The "Long-Term Program of Scientific and Applied Investigations and Experiments Planned at the Russian Segment of the International Space Station," the program of implementation of scientific and applied investigations at the Russian segment of the International Space Station in the period of its deployment (1999–2003) in the interests of organizations and industrial enterprises, the Academy of Sciences and various departments of the Russian Federation, and also the CIS countries, and the programs of the development and creation of target-oriented equipment suggested for use at the International Space Station and programs of international cooperation were formed.

Proposals were developed to organize ties with the CIS countries and advanced space-exploration powers in the creation and use of space devices to monitor the natural environment. One of the practical outcomes of the realization of these proposals is the creation of the Dnepr space-rocket system with the use of RS-20 strategic missiles to be destroyed in accordance with the agreements concluded with the U.S. on the reduction of offensive weapons. In April 1999, an English spacecraft was successfully launched using a modernized RS-20 missile. Successful first launches of Start-1, Rokot, Volna, and Shtil converted carrier rockets were conducted.

V. F. Utkin's productive work and colossal achievements in the field of creating modern space rocket systems brought him world fame. Practically every year he was nominated for the title of "Man of the Year" and then "Man of the Century."

Vladimir Fedorovich Utkin was a versatile scientist who took an interest in a great variety of fields of science and technology. He had a good understanding of many technical questions that were not related to his main qualification. His broad erudition, rich engineering experience, courage and initiative in the formulation and solution of complex problems, and outstanding organizational ability enabled him to successfully deal with simple but urgent problems that are important for humanity — the ozone layer, the removal of radioactive waste of nuclear power plants, the possibility of predicting environmental disasters, and many others.

Possessing an indisputable authority as a designer and enormous experience and knowledge, Vladimir Fedorovich came into contact with his interlocutors exceptionally easily and simply; he found agreed solutions of problems in situations where the viewpoints of the debating speakers substantially differed, and he could solve problems at any level without offending his interlocutor and prove that he was right.

His speeches and statements were always bright, emotional, and remarkable for their depth and originality. The words of a poem cited by him on the day of celebration of the 50th anniversary of space exploration sounded prophetically as appreciation of the achieved results and his entire work:

"Our efforts have been rewarded by the fact that,
Having overcome the absence of rights and darkness,
We forged flaming wings
For ourselves, our country, and our time,"

of which the last lines were inscribed on the pedestal of the monument in his honor.

He dearly loved life, nature, and his Little Homeland — the region of Ryazan. He was glad to meet and have numerous conversations with fellow towns-people and others who came from the same part of the country whom he helped to deal with their problems. He was the moving spirit, organizer, and chairman of the International Science and Technology Conference "Space Exploration. Radio Electronics. Geoinformatics" in Ryazan which became a traditional event.

The International Conference timed to coincide with the 75th anniversary of V. F. Utkin's birth and involving the participation of not only residents of Ryazan, but also those of the village of Izhorskoe (the birthplace of K. E. Tsiolkovskii) developed into a grand popular occasion; it was attended by scientists, factory personnel and officials, office employees, and university, college, and school students of the city of Kasimov and other neighboring towns and townships of the Ryazan Region. The meeting with his great fellow countrymen, the cosmonauts Klimuk, Kovalenok, and Glazkov, and the U.S. astronauts Stafford, Engle, and Anderson, was a genuine triumph for the cause to which K. E. Tsiolkovskii and V. F. Utkin had devoted their lives and also a brilliant awareness-raising promotion campaign for rocket-technology achievements. It was confirmed with confidence that cosmonautics and astronautics had lived and would continue to live for the benefit of humanity.

Vladimir Fedorovich Utkin passed away on February 15, 2000.

Years pass and events change fast. New achievements emerge, and new names appear. Some things lose their topicality and disappear. Some things, on the contrary, begin to be recollected, and many things acquire significance and become meaningful decades later. But the name of Vladimir Fedorovich Utkin — Man, Citizen, Designer, and Scientist — one of the initiators of the exploration of outer space, will remain in mankind's memory forever.

"All that has been genuinely great, will remain great forever."

Professor I. V. Ershov, Doctor of Technical Sciences