

## His life was like a meteor

радиотехническом факультете, а также членом, а затем секретарем факультетского бюро ВЛКСМ. За активную общественную работу и отличную учебу он неоднократно получал благодарности ректора института А.А.Воробьева, а с апреля 1952 года Ф.И.Перегудов стал Кировским стипендиатом, Министерством высшего образования СССР ему была назначена стипендия им. С.М.Кирова.

С апреля 1952 года Ф.И.Перегудов стал кандидатом в члены КПСС.

За все время обучения Ф.И.Перегудов имел только отличные оценки в зачетной книжке и по результатам защиты дипломного проекта и учебы в институте получил диплом с отличием.

По окончании института Ф.И.Перегудов был оставлен для продолжения научной работы при кафедре радиотехнической аппаратуры и поступил в аспирантуру. Его руководителем был профессор В.Н.Кессених из университета. Отличная подготовка в институте, природные способности и целеустремленность позволили ему успешно завершить и защитить кандидатскую диссертацию.

В те годы, с 1953-го по 1960-й, на кафедре радиотехнической аппаратуры выполнялась по постановле-

нию ЦК КПСС и Совета Министров СССР научно-исследовательская работа (тема 300) по радиолокации метеорных следов. Был разработан и построен ряд радиолокационных станций, передатчики которых разработаны Ф.И.Перегудовым или под его руководством. Но объединил вокруг себя талантливую молодежь — студентов, которые затем оставались работать на кафедре в качестве научных сотрудников. В это же время Ф.И.Перегудов не оставлял общественную работу: он возглавлял в 1954 году шефскую бригаду ТПИ над детским домом №5 г. Томска, часто бывал в нем, беседовал с воспитанниками, многие из которых затем поступили в институты и стали инженерами.

Радиолокационные станции, разработанные, в том числе и Ф.И.Перегудовым, были установлены на полигоне, специально построенном на месте нынешнего Академгородка. Наблюдением радиолокационных отражений от метеорных следов Ф.И.Перегудов занимался до 1960 года, когда группа сотрудников научного коллектива кафедры радиотехнической аппаратуры была переведена на новое направление научно-исследовательской работы по изучению распространения радиоволн.

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V.P.Denisov,  
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L.P.Serafinovich

## *Our colleague F.I.Peregudov*

### **V.P.Denisov:**

— In different periods of his life F.I. Peregudov communicated with different people. I have worked with him side by side during the years 1954 — 1966.

F.I. Peregudov graduated in radio engineering in 1953. E.I. Fialko was the Head of the Department of Radio Technical Apparatus. He concluded the contract with the Research Institute for Atmosphere Physics on the development of a pilot radar to observe meteor traces. It was first large-scale research conducted at the Department. That time the Department had neither engineers nor production facilities. E.I.

Fialko could count only on students and post-graduates. F.I. Peregudov was one of them. He was charged with the development of radar transmitter. Fellow students I.D. Zolotarev and L.P. Serafinovich devised the channel of angular coordinates and radio receiving device.

The development of radar transmitter F.I. Peregudov started during his project work. After the completion of the project work he entered postgraduate courses.

It is astonishing, but first meteor radar was invented in 1956 without the channel of angular coordinates. The station operated at 10m wave and was

V.P.Denisov, M.M.Raizman, L.P.Serafinovich

called TPI-1. In December 1956, F.I. Peregudov and V.A. Fyodorov set the TPI-1 in the North Filial of the Research Institute for Atmosphere Physics and conducted test observation of the meteor shower Heminid. Later TPI-1 was used for investigations of northern lights.

The second streamlined variant of the meteor radar TPI-2 was developed later. That station was set in special test ground of TPI.

In 1959 F.I. Peregudov defended Ph.D. thesis called 'Some radar problems of meteor traces'. In 1960 he published monograph 'Characteristics of a meteor as a radar target'.

F.I. Peregudov always used to say that the true scientist is that one who obtains important new results maybe not so beautiful as those nicely packaged in mathematical formulas.

In 1957 E.I. Fialko concluded the contract on the development of passive radar system of centimetre band. The work was called 'Point'. F.I. Peregudov was responsible for its fulfillment. E.I. Fialko was research manager. Postgraduates and engineers G.B. Grigoriev, G.S. Sharygin, M.M. Raizman, A.B. Dudko, N. A. Sysoev, B.J. Maslov, B.A. Relkin, V. A. Naslednik, Y. M. Slusrtchuk, and V.A. Zamotrinsky became main executors of that contract.

It was a wonderful team of scientists who worked hard. Sometimes we worked at nights. Soon it appeared that the possibility of developing equipment meeting the requirements of the customer was limited because of unexplored laws of wave propagation over the broken country, and it was necessary to conduct cumbersome field experiments. We acquired radar stations, tractors, field power sources, and other equipment. Drivers, technicians, laboratory assistants, supply agents all of them had equal rights of the team members.

By 1960 the 'Point' was completed. The operating model of the equipment was underwent the field test. F.I. Peregudov was the adviser. Field test conducted under guidance of Peregudov showed positive results, and the equipment was ordered by the customer. In order to implement the results of research F.I. Peregudov organizes the Special Design Bureau

on the basis of his team of scientists. It was a large scientific body which included the 'Point' researchers and researchers from other scientific teams. The amount of research workers of the Design Bureau came to 600.

Despite the pressure of work F.I. Peregudov delivered lectures at the Department of Radio Technical Apparatus at Tomsk Institute of Control Systems.

Mounting-climbing was Peregudov's passion during his work at the Special Design Bureau. G.G. Andreev, A/Professor of TPU fascinated him. That outstanding sportsman G.G. Andreev created the mountain team in Tomsk, which took first places in All-Russia competitions. In 1964 F.I. Peregudov participated in the expedition to Lenin Peak, and in 1965 to Korzhenevsky Peak.

In 1966 after the reorganization of Russian economy F.I. Peregudov accepted the proposal to become a director of Tomsk Radio Engineering Plant. Such experienced engineers as M. Raizman, V. Kudriavtsev, L. Shoshin, V. Khazanov and many others also moved to that Plant. They organized the new design organisation which is now called 'Reaton'.

Investigations, which F.I. Peregudov conducted in radio wave propagation, have developed into the scientific line, which is continued up to now at Tomsk State University of Control Systems.

F.I. Peregudov began his research activities from investigations of meteors, small celestial bodies which piercing earth's atmosphere leave the bright ionizing trace. The life of F.I. Peregudov is similar to meteor.

### **M.M.Raizman:**

— 1965... Almost all innovations and reforms made by Khrushov were canceled. Regional initiative was declared dangerous for the monolithic economy of the country. Not still much stronger inter-regional and intersectoral links were considered unnecessary.

F.I. Peregudov and his team who moved from Tomsk Polytechnic University to the Special Design Bureau at the Measuring Equipment Works found themselves in difficult

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position. He intended to solve some principal tasks.

First, the successful research findings would be delivered directly to the research developments and further to production.

Second, the Special Design Bureau could substantially assist in research. Its production surpassed traditional productions of other plants of Tomsk. The new enterprise (now it is Tomsk Radio Engineering Plant) demanded qualified specialists. In connection with this the Design Bureau of one plant has been allocated on the territory of the other. That must create prerequisites for the subsequent integration of production in changing a highly specialized enterprise for somewhat diverse production closely connected with science.

Third, Peregudov's team consisted of young prospective scientists and engineers was in need for the improvement of financial and housing conditions, and there was the possibility of that.

By the time of liquidation of the economy committees, F.I. Peregudov has become the Head of the Special Design Bureau which carried out R&D for the Ministry of Defence. It was rather difficult for the Special Design Bureau to operate under those conditions. Delays of payment, renting of rooms, difficulties in obtaining equipment and inventory materials.

Again Peregudov was forced to build another test ground close to Tomsk and solve scientific and design problems including relations with military men, reclamation of unfinished production areas, and even digging up potatoes, stocking up silage, etc.

F.I. Peregudov relied mainly on the 'human element' in his work although he had never declared or used that term. He loved people he worked with, treasured and respected them.

Dealing with R&D processes in which participated hundreds of people, F.I. Peregudov realized the importance of optimization of the government. He set about studying the theory of creating large systems in Tomsk and started to investigate principles of network planning and governing.

Together with his team, F.I. Peregudov searched for the optimal organization for the Special Design Bureau, optimization of design and instruction documents. Engineers specialized in broad-bend and parametric amplifiers, microstrip technique, pulse engineering worked at the Bureau. Technologists, designers, researchers were involved in the process of creating

new industrial goods. Much attention was paid to long and short-term plans.

At that time the economy of the country underwent changes and the Special Design Bureau together with the Measuring Equipment Works were moved to the Department of the Ministry of Radio Engineering.

Meantime the Radio Engineering Plant where the Special Design Bureau was located was gradually developing. After his new appointment the director of the Plant D.V. Cheredov recommended F.I. Peregudov to that position. The new director set about establishing the Special Design Bureau. He demanded from heads of shops, chief specialists and others to think of tomorrow. Again he had felt that the main problem was the problem of the optimal government. And F.I. Peregudov formed the concept of computer technology used for the automated control system. The enthusiast V. I. Nevraev helped F.I. Peregudov.

Soon afterwards one of the buildings of the plant was reconstructed. The Computer Center was founded there. The database, input-output forms of documents should be worked out. Automated control subsystems were implementing, programmers and operators were training. Later on the first 'machine' plans appeared — daily, weekly, and monthly tasks for shops, fields, and individuals.

It took many years to settle all problems of the plant. The great thing the automated control system provided was the possibility to regard the plant as the 'big system' and find its weaknesses. Being the director F.I. Peregudov understood the systems approach to those problems. He discussed his ideas with directors of other plants. With his colleague Nevraev F.I. Peregudov held seminars on enterprises with the automated control system. Other plants of Tomsk adopted the experience of the Radio Engineering Plant.

In those days the Radio Engineering Plant started to produce bobbin recorders 'Comet', which were developed and produced in Novosibirsk. In 1968 the Radio Engineering Plant assembled 3 thousand recorders partially of Novosibirsk parts. Next year the Ministry sent out the plan of 43 thousand recorders. That was impossible. F.I. Peregudov denied the doubtful plan and gave reasons including computations based on the automated control system. First deputy minister supported F.I. Peregudov, but since that time he had become an 'awkward' director.

Meanwhile at the plant F.I. Peregudov formed groups of people inspired with his plans and innovations. The Special Design Bureau was one of such groups. In a year they designed the pilot model of the tape-recorder 'Tom-401', one of the first domestic tape-recorders.

Later the Bureau designed and produced radio cassette player 'Tom-305', stereo radio cassette player 'Tom-206', tape-recorder 'Tom-303', and stereo 'Tom-209'. First tape-recorder was devised by Peregudov's initiative.

Directorship of F.I. Peregudov ended with a position at a Moscow research institute. But after the call of the first deputy minister F.I. Peregudov moved to Tomsk. He was appointed deputy director of the Research Institute for Automatics and Electromechanics at TPI. It was a new chapter of his life.

#### **L.P.Serafinovich:**

— Almost 50 years ago F.I. Peregudov arrived to Tomsk to apply for Tomsk Polytechnic Institute. He was 17 years old. He finished Novosibirsk school with the gold medal and it was not difficult for him to enter the Institute. At first F.I. Peregudov was admitted to the Department of Electrovacuum Devices of the Faculty of Applied Physics and Engineering. A few months later he obtained a decision of his moving to the Radio Engineering Department. Already at the first course of study he lived up to his gold medal. His specialist essays and abstracts were fulfilled very competently and thoroughly. F.I. Peregudov was a joyful friendly fellow,

very sympathetic and well informed. He was fond of track and field athletics, run for short distances.

In his first year he was appointed the agitator of the group and then the leader. He could skilfully combine studies, research, and social assignments. During his tuition Peregudov was the chairman of the scientific student community at the Radio Engineering Faculty, a member of the Departmental Komsomol Committee, and later its secretary. He received many official messages of thanks from V.V. Vorobiev, rector of the Institute. Since April 1952, F.I. Peregudov had received Kirov's scholarship assigned by the Ministry of Higher Education of the USSR.

During the whole period of education F.I. Peregudov was getting not only excellent marks but also was awarded the honours degree. After his graduation from the Institute he entered postgraduate courses to conduct research at the Department of Radio Engineering Apparatus. His adviser was Prof. V.N. Kessenikh from the State University. Excellent training and natural skills of Peregudov allowed him to successfully defend Ph.D. thesis.

While working at the Design Bureau F.I. Peregudov had never left his social activities. In 1954 he headed the TPI voluntary-assistance team for Tomsk infant's home N 5, often visited it and discussed any problems with children. Many of those children became students of Tomsk institutes and received engineer's diplomas.