

Eminent Structural Engineer: Evgeny Gibshman

The Teacher and the Scientist (1905–1973)

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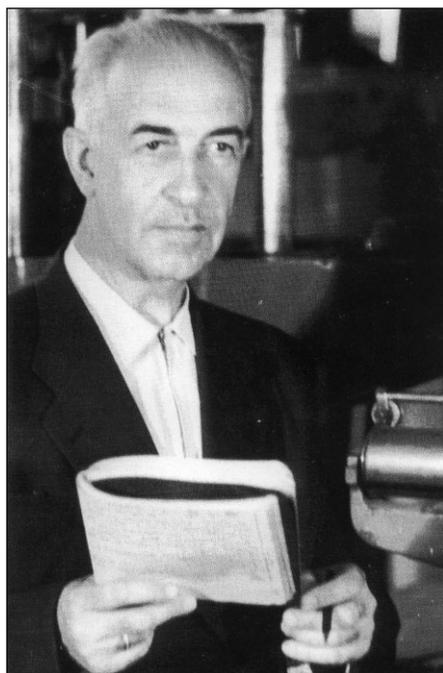
Brief CV

20.07.1905	Born in Moscow
1921–1925	Student of Moscow Institute of Engineers of Transport (MIIT)
1925	Engineer for Bureau of Engineering Researches of Ministry of Railways
1926–1930	Assistant Professor at MIIT Structures Department
1930	Head of the Bridge Department at the MIIT Retraining Faculty
1930–1956	Professor at the MISI (Moscow State Institute of Civil Engineering)
1932–1973	Head of the Bridge Department at the Moscow Automobile and Road Construction Institute (MADI)
1934	Bridge Test Laboratory at the MADI Bridge Department
1935	Candidate of Science (Tech.)
1937	Start teaching “Bridge and Tunnels” course
1940	Doctor of Science
1966	Doctor Emeritus (Tech.) of Slovak Polytechnic Institute in Bratislava
1973	Passed away in Moscow

Keywords: Gibshman; Structural engineer; Moskvoretsky bridge; Krasnoholmsky bridge; Bolshoy Kamenny bridge; MADI; MIIT; MISI.

Childhood

Evgeny Evgenyevich Gibshman (Fig. 1 *a,b*) was born on 20 July 1905. His father Evgeny Alexandrovich Gibshman was a well-known bridge engineer of German origin. Even in his childhood, young Evgeny manifested outstanding



(a)



(b)

Fig. 1: (a) Evgeny Evgenyevich Gibshman (b) Dr Gibshman is awarded a Silver Medal and a Doctor Emeritus (Tech.) title by the Slovak Polytechnic Institute in Bratislava

abilities for scholastic attainments, and showed a remarkable aptitude for music and painting. The happy childhood ended when he was twelve years old. It was the revolution of 1917... famine, cold and devastation. Rugged times for the Gibshmans. The twelve year old Evgeny became a book-keeper in a Moscow tea-house, getting his salary in kind: tea, sugar and firewood. He kept the books using a sliding rule masterfully, to the astonishment and admiration of the tea-house personnel

and frequenters. Still in his green years, Evgeny made a good name for himself on account of his kind-heartedness, integrity and exceptional hard work.

Education and Career

In 1921 Gibshman entered the Construction Engineering Faculty of the MIIT University. As a successful graduate of the MIIT, in 1925 he got an engineering job at the Russian Ministry of Railways.

His deep and omnifarious professional knowledge, rapidly gained experience of design work, intense vitality and after-work opportunities, triggered his academic and educational activities.

Way back, in the years 1926–1930, he began lecturing on “Bridges” and “Railways” at Moscow Construction College, completed postgraduate studies at the MIIT and was appointed assistant professor at the MIIT Structures Department. In 1930 he was elected Head of the Bridges Department at the MIIT Retraining Faculty and almost at the same time became a professor at the MISI (Moscow State Institute of Civil Engineering), where he worked till 1956 as faculty and dean.

Bridge Specialist

In the 1930s Russia cried out for engineering skills to build roads and bridges. The existing bridges had to be utilised as far as possible, while new economical structures were being built using modern methods of construction.

To undertake these tasks the MADI University opened a Bridges Department in 1932. Evgeny Gibshman became the first Head of the Department, remaining in charge of the academic community till 1973.

In 1934, Professor Gibshman set up a MADI research laboratory to test the existing bridges. The laboratory carried out the final acceptance tests of newly built bridges, the operational tests and evaluation of existing bridges and the reliability evaluation of nearly-failed

bridges. It helped to combine the educative process with field experience of bridges construction and operation. The laboratory tested more than 500 bridges in Moscow and various other regions of the former USSR.

A Scholar

Lack of educational literature on road bridges made Professor Gibshman write several textbooks and manuals. His first textbook “Timber Road Bridges” was written in 1935 and re-printed till 1965. He also wrote such fundamental textbooks as “Steel Road Bridges”, “Urban Engineering Structures”, “Bridges and Structures on Roads” (in collaboration with N. J. Kalmykov and N. I. Polivanov).

In 1937, Professor Gibshman started teaching “Bridges and Tunnels”, a specialisation course at the MADI Bridges Department and laid the foundations for one of the largest schools in the Soviet Union preparing highly qualified experts, scientists and teachers in bridge construction.

Award Winner

In 1935, for the great strides in bridge science he was awarded a degree of Candidate of Science (Tech.) without the defence of a thesis.

In 1939, he was given the “Honorary Highway Engineer” award. His authority in bridge building, even at a very young age, was evident by the fact that on 7th June 1939, during the defence of the well-known doctoral thesis of Prof. S. A. Ilyasevich on bridge dynamics,

he was named official opposer (examiner), although he did not have a doctorate degree himself at the time. In 1940, Evgeny Evgenyevich successfully defended a doctorate thesis on the dynamics of road bridges. It should be emphasised that the results of his research work in this scientific area have been used in bridge design norms for many decades ever since and up to the present day.

For his distinguished efforts in the development of bridge engineering, Dr E. E. Gibshman was awarded the honorary title of “The Honoured Worker of Science and Technology of the Russian Federation”.

Working Style

Dr Gibshman’s scientific work is marked by extensive versatility, wide area of application and the ability to spot the essential, most useful and innovative. He never restricted himself to pure theory but always aimed at practical implementation of the technology, actively responding to current demands in bridge design and construction.

His early work on the wind-bracing behaviour of steel bridges is also worth mentioning. For the first time it was proved that members of longitudinal horizontal bracing were subject to vertical live load.

His study of the actual performance of riveted joints was no less important and interesting. For a long time it had been considered that rivets took up loads irregularly and the number of rivet rows in structural design was limited by

the norms. Carefully executed experiments, conducted by Dr Gibshman, helped to remove these restrictions in all the regulatory documents.

Use of pre-stressed concrete in bridge construction necessitated taking into account the long-time creep of concrete. Dr Gibshman’s efforts, aimed at devising practical methods of the shrinkage and creep analysis of bridge structures, were the first ones in the field; and this ultimate goal was finally achieved in the monograph named “The Theory and Analysis of the Prestressed Bridges”, written by him together with his son Michael E. Gibshman.

Dr Gibshman also worked on problems of reinforced concrete bridges and traffic safety of the road bridges. Many of the points raised and dealt with in his monograph “Traffic Safety on Bridges” were implemented in practice on all bridges, overpasses and flyovers opened for traffic and being under construction in Russia.

A Bridge Activist

In all, Dr E. E. Gibshman has written more than 100 scientific papers amounting to 700 printed sheets and over 20 textbooks and monographs on bridges.

In addition to his educational and academic activities he was continually engaged in public works, being an expert of the Gosplan (the USSR State Planning Agency) and the Gosstroy (the USSR State Construction Agency), and a member of scientific and technical councils of several governmental ministries and agencies.

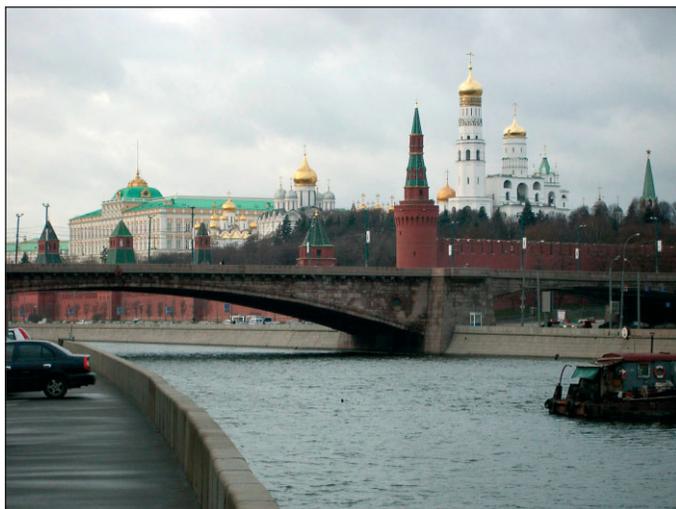


Fig. 2: Moskvoretsky Bridge



Fig. 3: Krasnoholmsky Bridge

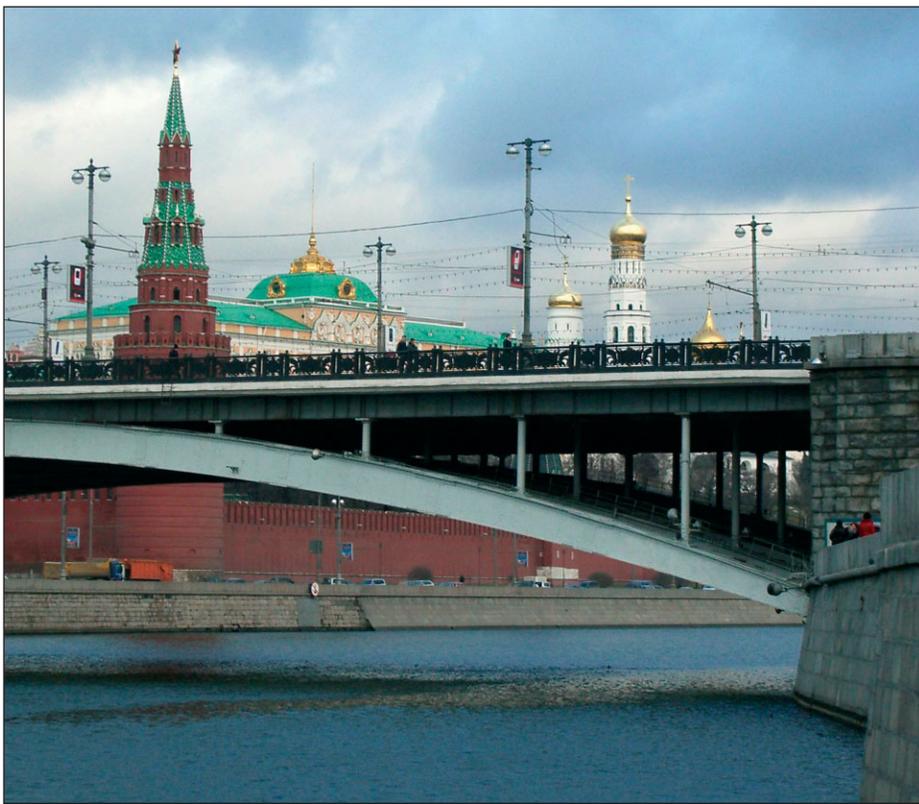


Fig. 4: Bolshoy Kamenny Bridge

He was directly involved in, and consulted on, the design of many unique bridges in Moscow and Kiev, such as the Moskvoretsky (Fig. 2), Krasnoholmsky (Fig. 3), Bolshoy Kamenny (Fig. 4), Bolshoy Ustyinsky, Chugunny, Maly Kamenny, Novoarbatsky bridges in Moscow and many others.

Dr Gibshman participated in project and design appraisals of many great bridge crossings, took part in the developing and editing fundamental regulatory documents on bridges and was a member of the editorial boards of several well-known research-and-technology periodicals.

For many years he was Chairman of the special academic council awarding scholastic degrees and Chairman of the tutorial council of the MADI Road Construction faculty.

Evgeny Gibshman maintained a close relationship with colleagues from allied universities and colleges, designers,

bridge builders and scientists. He was well known, respected and held in high esteem in Russia and abroad. In 1966, Dr E. E. Gibshman was awarded a Silver Medal and a Doctor Emeritus (Tech.) title by the Slovak Polytechnic Institute in Bratislava.

He was a member of the IABSE, delivered presentations at the IABSE Congresses in Lisbon and Stockholm and at numerous other congresses, conferences and symposia and gave lectures in domestic and foreign Universities.

Being engaged in diversified research, tutorial, organisational and public activities, Professor Gibshman worked for the formation of a scientific and academic atmosphere and created a climate of mutual assistance and good-natured interpersonal relations. However, he could be rather demanding, if the need arose, though always remaining a kind-hearted person.

“Iron Hand in a Velvet Glove”

While presenting him to a new course of students at the first lecture that opened his subject “Bridges”, he jokingly used to say – “Some people like to say that I am a man with an iron hand in a velvet glove. And that is probably true, so, look out.” With those words he smiled, and everybody present smiled in response, because they knew already that, that was a standing joke in the department.

Dr Gibshman possessed a wealth of knowledge in many areas of science and technology and was a teacher of no mean ability; his lectures were distinguished by profound content, explicit data and accurate, graphic illustrations. He could present and explain complex matters in a simple and straightforward manner, easy for the audience to follow. He created his own teaching school, having as its distinctive basic principles clear presentation and excellent systematic working out of the educational material, emphasis on the most essential points, and respect and benevolence to colleagues and students.

He was a remarkable person, devoting much of his energy and efforts to the education of young specialists, a very civilised person of good morals and intrinsic intellectuality, possessing personal charm and exceptional modesty. His extensive knowledge of bridge building was combined with a knowledge of several foreign languages, passion for music, literature, theatre and painting.

Dr Gibshman passed away in 1973 but his life will always be an example of sincere and whole-hearted devotion to the well-being and prosperity of his Alma Mater – the MADI University.

He has always been and will ever be loved and cherished in the memory of thousands of his students and colleagues and those who happened to know him and associate with him, as he was a true-born Engineer, Scientist, Intellectual, and a Man of the Right Spirit.