

*In Memoriam***Professor dr Ing. Dipl. Math. Danilo P. Rašković
(1910-1985)**

*Prof. Dr. Eng. B.Sc. Mathematician, DANILO P. RAŠKOVIĆ,
full-professor at the Faculties of Mechanical Engineering in Belgrade, Niš, Kragujevac and Mostar,
and the Faculties of Science in Belgrade and Novi Sad*

Danilo Rašković, a doctor of technical sciences and mathematician with a university degree, was the founder of the first scientifically based courses of mechanics at the Faculty of Mechanical Engineering in Belgrade. He also introduced courses on the subject of resistance of material, elasticity theory, and oscillation theory all of which he taught, too. He was the author of many high-circulation textbooks of high scientific level and good mathematical foundation. He introduced vector, matrix and tensor calculus in the studies of mechanics at the Faculty of Mechanical Engineering in Belgrade and, later on, did the same at the mechanical engineering faculties in Niš, Kragujevac and Mostar. He enabled the Faculty in Belgrade, and similar schools elsewhere, to produce highly qualified and educated engineers which was one his greatest contributions. He wrote the first university textbook in Serbia on the oscillation theory containing his original accomplishments in the field. He achieved considerable scientific results in the fields of elasticity theory and oscillation theory. With a good human resource base at the Niš Faculty, which he had set up, he started research work into the field of nonlinear mechanics. His scientific work is important because in all of his projects he succeeded in connecting theories of elasticity and oscillation, and engineering practice. He wrote 25 university textbooks which covered the entire field of mechanics and related areas. Almost all of them had been reprinted several times, with some of them having 20 reprints. His excellent textbooks were in use on the territory of the entire former Yugoslavia, which was in tatters under the powerful influence of fascism during the Second World War. Thanks to Professor Danilo Rašković,

the faculties of mechanical engineering of Serbia, Bosnia and Herzegovina, and all the other republics of the once unified Yugoslavia, which are now separate states, produced excellent mechanical engineers. Rašković was a patriot and an honourable man. He was the recipient of the October award of the city of Niš for his contributions to the development of science at the city's university.

This distinguished scientific figure of exquisite creative energy and inspired enthusiasm, a scholar deeply attached to the Yugoslav and Serbian scientific and cultural heritage, and an exquisite pedagogue of high moral principles is in the living memory of many generations of students whom he taught how to learn and love mechanics, as a basic scientific branch of mechanical engineering either directly, through his lectures, or through his various and numerous textbooks and compilation of problems. His disciples and colleagues are glad that he had the ability to pass onto them his great enthusiasm permeated with his sincere devotion for mechanics and his exquisite scientific eagerness.

Professor Danilo P. Rašković was born in 1910, in Užice. Upon completing elementary school and six grades of the high school, he graduated from the Military Academy in 1930. As an engineering military officer he enrolled in the department of mechanical and electrical engineering at the Faculty of Engineering in Belgrade, in 1933. Having graduated in 1938, he enrolled in the department of theoretical mathematics at the Faculty of Philosophy and graduated from it in 1941. As a graduate mechanical engineer he was appointed assistant section head of the Military Technical Institute in Čačak. He remained in that position during 1941. In 1942 he was appointed assistant at the Faculty of Engineering in Belgrade where he earned his doctorate's degree in the same year, upon presenting his thesis entitled *Tangential Strains of Normally Profiled Beams*.

Professor Rašković lectured mechanics, strains of materials and oscillation theory at the faculties of mechanical engineering in Belgrade, Niš, Kragujevac, Novi Sad and Mostar, as well as at the Faculty of Science in Belgrade, Faculty of Philosophy in Novi Sad, Faculty of Electronics in Niš, and at the Military Technical College in Belgrade. More details on the research work of Professor Rašković can be found in the Belgrade University Bulletin no.75 of 1957, issued on the occasion of his appointment as a full professor at the Faculty of Mechanical Engineering in Belgrade. During his university career, he was twice elected Vice-Dean of the Faculty of Mechanical Engineering of the Belgrade University. In the mechanical engineering department at the Faculty of Engineering in Niš, he lectured statistics, kinetics, kinematics, dynamics, oscillation theory, resistance of material, theory of elasticity, as well as analytical mechanics, theory of nonlinear oscillations and continuum mechanics at the postgraduate level. He was the first head of the department of mechanics and automatics at the Faculty of Mechanical Engineering in Niš. He was an extremely inspired professor, scientist and practitioner much favoured among his students and respected by his colleagues both as a professor and an engineer, because he knew how to relate engineering theory to the practice.

Professor Rašković was a very fertile writer. While still in the military service he wrote five professional papers. In the period before 1957, when he was appointed full professor, he published 26 scholarly papers. As a full professor he wrote 37 pieces of scientific work that were published in scientific journals of the Serbian Academy of Sciences and Arts, Polish Academy of Science, German Society of Mechanics ZAMM and some other foreign journals. He took part in a number of scientific meetings in the country and abroad. He reviewed papers for four leading referral journals in the world: *Applied Me-*

chanics Review (USA), *Mathematical Review* (USA), *Zentralblatt für Mathematik* (Germany) and *Referativnii žurnal* (Moscow). Professor Rašković was a member of several professional and scientific societies/association in the country and abroad, the GAMM being one of them. He initiated the foundation of the Yugoslav Society of Mechanics during 1952.

He wrote a considerable number of the university textbooks which ran through numerous editions. Some of them still hold records as for the number of editions and copies printed within the group they belong to. In addition, he wrote a series of textbooks on the subject of mechanics for secondary technical schools, as well as a number of chapters in professional technical handbooks, mimeographed course materials and textbooks for post-secondary schools of mechanical engineering. He also wrote several textbooks for post-graduate studies.

Among the publications for postgraduate studies the following should be mentioned: *Analytical Mechanics, Theory of Elasticity and Tensor Calculus*.

Most of his university textbooks and publications were at the time of their first edition the only professional literature on the subject, in the Serbian language. So, his publications played an important part in spreading of the knowledge in the field of technical mechanics among students, and mechanical and other kinds of engineers in Serbia and Yugoslavia. It is particularly worth mentioning that he has interpreted all the material by the most modern mathematical apparatus and has illustrated it by numerous examples from the engineering practice. Many of the cited university publications are being reprinted even nowadays and are still used by both students of engineering and engineers themselves.

Although it has been twenty years since he left us, Professor Rašković is still present among new generations of students, and engineers, through his renowned textbooks that bear the memory of his merits and which have also left an indelible imprint on the development of mechanical engineering science and practice, and on the formation of many a generation of university professors. His life and work have set an example to future generations of students educated at the University of Niš and provided them with a creative impulse. He is an everlasting paradigm and a proof of how one's deeds can outlive one's physical existence by far.

In 1962 Professor Rašković, as the head of mechanics department at the Institute of Mathematics of the Serbian Academy of Sciences and Arts, organized research work in four different study groups, each one dealing with a particular subject, which were: Stability of motion - supervised by Dr Veljko Vujičić, Boundary layer theory - supervised by Dr Victor Saljnikov, Problems of anisotropic incompatible materials with finite strain - supervised by Dr Rastko Stojanović and Optimal problems of mechanics - supervised by Prof. Dr. Danilo Rašković.

According to records from the mechanical engineering faculties in Belgrade and Niš, as well as those from the Zentralblatt's data base, he traveled abroad on several occasions in order to participate in international scientific gatherings or to expend his knowledge. In 1957 he went to Berlin to do his specialization studies with a piece of work which was published in the *Proceedings of the 20th International Congress of Applied Mechanics*. In September 1956, in Brussels, he participated in the working of the said congress. He took part in international congresses of applied mathematics and mechanics of the German society GAMM a few times: 1957 - in Hamburg and 1958 - in Saarbrücken. Also, in

1959, 1961 and 1962 he was delegate of the Yugoslav Society of Mechanics. In 1963, in Karlsruhe, he represented Mathematical Institute of the Serbian Academy of Sciences. In 1966, in Darmstadt, he “*produced a scientific statement in the field of oscillation theory*” and in 1968 in Prague, Czechoslovakia, he had a paper entitled *Second order acceleration (jerk) for the relative motion of a body expressed by a matrix method*.

He also participated, several times, in the working of the International Conference of Nonlinear Oscillation (ICNO): 1962 in Warsaw, as a delegate of the Council of Science of the People’s Republic of Serbia; 1969 in Kiev; 1972 in Krakow, at the ’72 ICNO.

Between the 1963/64 and 1973/74 academic years he was the Head of the mechanics section of the mechanical engineering department at the Technical Faculty in Niš, while giving lectures on all subjects from the mechanics group. Simultaneously, he taught mechanics at technical faculties in Kragujevac and Mostar and, for a while, also the subject of applied mathematics at Novi Sad Faculty of Mathematics. He accepted the position in Niš after being acquitted of the duty as a lecturer at the Faculty of Mechanical Engineering in Belgrade. The said acquittal was brought in by the Faculty in Belgrade, and was registered under the no. 67/8, in January 1964. Comments on the controversial decision are left to the others. For further reference readers should look into the book (*).

In 1974/75 he was arrested in Mostar, Bosnia-Herzegovina, and unjustly sentenced. Following the experience, he worked on new editions of his high-circulation textbooks, out of which the 10th edition of *Mechanics I* for university studies deserves a special mention as does the 15th edition of his handbook containing tables from the strength of materials. Last months of his life he spent preparing his textbook *Elasticity Theory* for publishing. It came out in 1985 but he did not live to see it.

He died, unexpectedly, on January 29, 1985 in Belgrade.