



STEPHEN P. TIMOSHENKO

1878–1972

Few men in this century have had as great an impact on engineering mechanics and engineering education as Stephen P. Timoshenko. Through his research and his writing he contributed remarkably to the advancement of his profession, and through his teaching and his contagious enthusiasm inspired thousands of his students and colleagues.

Professor Timoshenko started his career in Russia during the turbulent years before and during the Communist Revolution. In spite of the disturbed conditions and hardships of that era, he pursued his writing and research with dedication, and became widely recognized in Europe for his fresh approach to problems in structural mechanics. As a refugee from the Bolshevik regime, he was finally able to bring his family to Yugoslavia where he obtained a professorship at the Polytechnic Institute of Zagreb in 1920. Two years later, he took the more drastic step of emigrating to the United States and facing what was to him the perplexing American way of life.

At that time, his reputation was well established in Europe, but he was virtually unknown in this country. It is a tribute to his ability and remarkable personality that in the next few years as a research engineer at Westinghouse Electric and Manufacturing Company he revolutionized the existing approach to technical problems and attracted a following of younger engineers. It was largely at his urging and due to his guidance that the American Society of Mechanical Engineers established the *JOURNAL OF APPLIED MECHANICS* and the Applied Mechanics Division of which he served as chairman in 1927 and 1930.

His intrinsic love for teaching led him to leave Westinghouse in 1927 to become Professor of Engineering Mechanics, first at the

University of Michigan and then at Stanford. The many able students he attracted can testify to the vitality and timeliness of his teaching. In his lectures he used a characteristic approach that emphasized the physical meaning of the solutions and the practical applications. Results were carried through to numerical results. He began with simple particular cases, gradually introduced more complicated examples, and then generalizations. He demonstrated very effectively the power of mathematical analysis without any unnecessary excursions in mathematical generalities.

Along with his teaching, Professor Timoshenko continued his research and also produced the great series of texts which became classics in the field of mechanics. Reading his books and papers is as stimulating as listening to his lectures. You catch his enthusiasm for his beloved field of applied mechanics. Your interest is aroused by his fresh and fertile point of view. You see mathematics and engineering welded together in a friendly union. His clear and free-flowing presentation sometimes hides the greatness of his contributions.

In the preface to the book, "The Collected Papers of Stephen P. Timoshenko," published by McGraw-Hill, New York, in 1953, a group of his former students and colleagues closed with a paragraph that expresses beautifully the feelings of the many who knew him. What was written then is as true today, and bears repeating here:

"To present Timoshenko's collected scientific papers without any reference to his work as a teacher would somehow be incomplete, for as important as his scientific contributions have been to the development of mechanics, they never can overshadow

his human influence, especially here in America, as a beloved and inspiring teacher. Professor Timoshenko first came to this country in 1922, and it may be said that during these past thirty years, he has wrought more change in America than America has in him. Considering the relative inertia of the two bodies involved, this is indeed a strong tribute to his individualism. Yet when we see that today at least some of his books are used in almost every engineering school in our land, that his former students are numbered by the dozens among our engineering

faculties, and that he was an important organizer of the Applied Mechanics Division of the American Society of Mechanical Engineers, we must indeed pause to marvel at his widespread and significant influence on American Engineering Education. The impressions that he has left in the minds and hearts of those who have called him teacher will remain as true a monument to his greatness as the scientific works that are assembled here."

Dana Young

TIMOSHENKO, STEPHEN PROKOFIEVITCH; Born Shpotovka, Ukraine, Russia, December 22, 1878; died Wuppertal, West Germany, May 29, 1972; married, one son, two daughters, 7 grandchildren; graduated Institute of Engineers of Ways of Communications, Russia, 1901; advanced studies University of Göttingen; came to United States, 1922; naturalized 1927.

Positions: Instructor, Institute of Engineers of Ways of Communications, 1902-1903; assistant professor, Polytechnic Institute of St. Petersburg, 1903-1906; professor, Polytechnic Institute of Kiev, 1906-1911; professor, Electrotechnic Institute and Institute of Engineers of Ways and Communications, 1912-1917; professor, Polytechnic Institute of Zagreb, 1920-1922; research engineer, Westinghouse Electric and Manufacturing Co., Pittsburgh, 1923-1927; professor of engineering mechanics, University of Michigan, 1927-1936; professor of engineering mechanics, Stanford University, 1936-1944; professor emeritus, 1945-1972.

Affiliations: Member of Ukrainian Academy of Science, 1918; member of American Society of Mechanical Engineers, 1924; fellow, 1938; corresponding member of Russian Academy of Science, 1928; corresponding member of Polish Academy of Technical Science, 1935; member of American Philosophical Society, 1939; corresponding member of French Academy of Science, 1939; member of National Academy of Science, 1941; foreign member of Royal Society, London, 1944; foreign member of National Academy dei Lincei, Rome, 1948.

Honorary Degrees: Lehigh University, DSc, 1936; University of Michigan, Doctor of Engineering, 1938; Zürich Technische Hochschule, Doctor of Engineering, 1947; München Technische Hochschule, Doctor of Engineering, 1949; University of Glasgow, Doctor

of Laws, 1951; University of Bologna, 1954; Zagreb Polytechnic Institute, Doctor of Engineering, 1956; Turin Polytechnic Institute, 1960.

Recipient: Jourawski Medal, Institute of Engineers of Ways of Communications, 1911; Salow Prize, Ministry of Ways of Communications, 1915; Worcester Reed Warner Medal, American Society of Mechanical Engineers, 1935; Lamme Medal, American Society of Engineering Education, 1939; Levery Medal, Franklin Institute, 1944; Grande Médaille, Association des Ingénieurs-Docteurs de France, 1946; James Watt International Medal, Institution of Mechanical Engineers, 1947; Gustave Trésenster Medal, Association des Ingénieurs Sortis de l'École de Liège, 1948; Honorary member, American Society of Mechanical Engineers, 1952; Timoshenko Medal, American Society of Mechanical Engineers, 1957; Cresson Medal, Franklin Institute, 1958; James Ewing Medal, Institution of Civil Engineers, 1963.

Author: *Applied Elasticity* (with J. M. Lessells), 1925; *Vibration Problems in Engineering*, 1928; *Strength of Materials*, 2 vols., 1930; *Theory of Elasticity*, 1934; *Elements of Strength of Materials* (with G. H. MacCullough), 1935; *Theory of Elastic Stability*, 1936; *Engineering Mechanics* (with D. H. Young), 1937; *Theory of Plates and Shells*, 1940; *Theory of Structures* (with D. H. Young), 1945; *Advanced Dynamics* (with D. H. Young), 1948; *The Collected Papers of S. P. Timoshenko*, 1953; *History of Strength of Materials*, 1953; *Engineering Education in Russia*, 1959; *As I Remember*, 1968; five earlier books in Russian.

Contributor: Numerous research papers in technical journals on theory of elasticity, strength of materials, elastic stability, plates and shells, dynamics, vibrations, and structures.