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Joseph H. Keenan, who retires this month as professor of mechanical engineering at the Massachusetts Institute of Technology, was to be awarded an honorary doctor of laws degree today by the University of Glasgow, Scotland, as one of the world's leading authorities on engineering thermodynamics and the properties of steam.

"For 25 years now, since the publication of his text, 'Thermodynamics,' in 1941, Joseph Keenan has been generally acknowledged as the leading figure in engineering thermodynamics in the western world," Professor Stephen J. Kline of Stanford University wrote recently.

"Keenan's 1941 text, is one of those landmark works that shifts the major trend of a subject onto a firmer foundation and higher and more useful ground."

Nor are Keenan's accomplishments limited to the extension and the unusually clear exposition of difficult technical ideas. His personal charm, lucid style and infectious interest in his subject have made his lectures outstanding in a field where the general level of performance is high.

"To my mind," said James R. Killian, Jr., Chairman of M.I.T. Corporation, "he is one of the finest examples I know of a scholar of the first order who is also unremittingly interested in and concerned with the art of teaching. Not only has he made important contributions to the body of knowledge and understanding in the field of thermodynamics but he has been able with great success to transmit his understanding to his students and associates."

One former student remarked, "he is without a doubt the most able teacher I have ever had in any course at a number of outstanding schools. . . .And yet the knowledge was

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passed on by the tasteful method of diffusion rather than the tart method of infusion."

Another former student said, "He has all the attributes of a great teacher: an attractive personality, a modest and kindly nature, a thorough understanding of his subject, an insistence on high standards, a quick insight into student difficulties, an alert attention to new aspects of his science, leadership in its growth and change . . . and an extraordinary ability to transfer logical thought from his own to the student mind."

Born in Wilkes-Barre, Pa., in 1900, Professor Keenan graduated from M.I.T. with the degree of bachelor of science in naval architecture and marine engineering in 1922. In 1928, after six years as a steam turbine engineer with the General Electric Company in Schenectady, N.Y., he was appointed assistant professor of mechanical engineering at Stevens Institute of Technology. He joined the M.I.T. staff in 1934 as associate professor of mechanical engineering and became a professor in 1939. He was head of the Department of Mechanical Engineering from 1958 to 1961.

In addition to his 1941 textbook on thermodynamics, he is co-author, with Dr. Frederick G. Keyes, of "Thermodynamic Properties of Steam," (1936), a basic source of design data for the steam power industry. "Thermodynamic Properties of Air" (1945) and "Gas Tables" (1948), which he prepared with Professor Joseph Kaye, have been used extensively in design and engineering related to gas turbines, jet-propulsion machinery and internal combustion engines. "Principles of General Thermodynamics" (1965) by Dr. G.N. Hatsopoulos and Professor Keenan is a new and more extensive treatment of the subject for which the 1941 book was taken as a point of departure.

In 1955, he was awarded the Worcester Reed Warner Medal by the American Society of Mechanical Engineers for "his outstanding contributions to the permanent engineering literature. . ."

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During and after World War II, Professor Keenan was chairman of the subcommittee on propulsion systems of the National Advisory Committee for Aeronautics. He also served as consultant on power plants to United Aircraft Corporation and General Machinery Corporation. His studies of friction and heat transfer in streams of air flowing at supersonic speeds are directly applicable to the design of supersonic aircraft and missiles.

He has served as a U.S. delegate to five international conferences on the properties of steam from 1929 to 1956.

As Executive Secretary of the U.S.A. Commission on the Properties of Steam, which reports to the American Society of Mechanical Engineers, Professor Keenan attended a meeting in Moscow during the summer of 1958 for the purpose of coordinating research on the properties of steam.

Under a Fulbright grant in 1951, Professor Keenan delivered a series of lectures on thermodynamics at Cambridge University, England, and at the Imperial College of Science and Technology in London. In 1957 he gave a series of five lectures at the University of London.

He has been associated with Jabez Burns & Sons, Inc., New York City, as a research engineer since 1929. During this time he has patented equipment for processing coffee and cocoa and devices for separating dust from gas streams.

Professor Keenan is a fellow of the American Academy of Arts and Sciences and the American Society of Mechanical Engineers. He is an honorary member of the American Association of Physics Teachers and a member of the Institute of the Aeronautical Sciences, American Society for Engineering Education, American Society of University Professors, Tau Beta Pi, Sigma Xi and the Harvard Musical Association.

In 1951 he received an award "for outstanding achievement in bringing about a better understanding of the American way of life" from Freedoms Foundation of Valley Forge, Pa.

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He is an avid reader and traveler and an ardent skier, tennis player and sailor. In fact, his great breadth of interests, coupled with a retentive mind and a keen eye for observation, is one reason he has been able to communicate so effectively with his students.

Professor and Mrs. Keenen, the former Isabel Morrison, live at 11 Howells Road, Belmont, Mass. They have two children, Mrs. John W. Carr III, of Bryn Mawr, Pa., and Matthew A. Keenan, of Boston.

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