

Retiring This Year



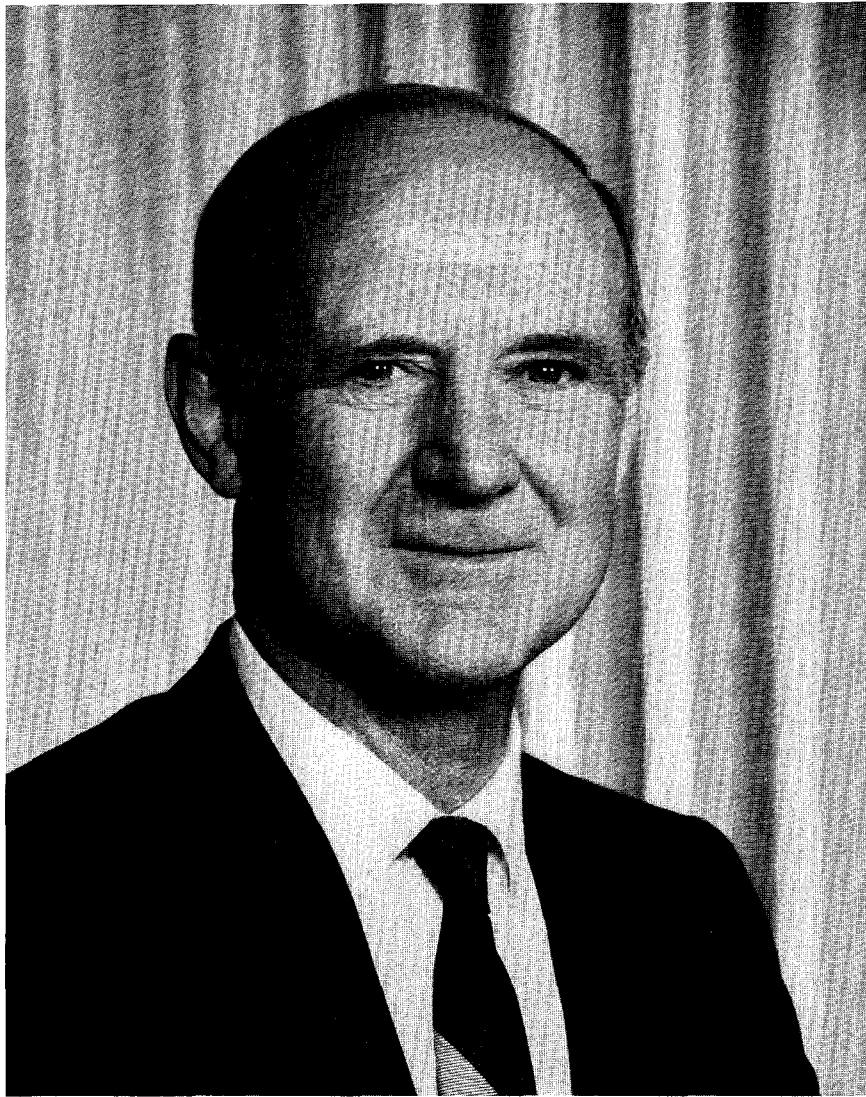
JESSE L. GREENSTEIN

Lee A. DuBridge Professor of Astrophysics

Jesse L. Greenstein becomes professor emeritus on July 1 after 32 years at Caltech. New Yorker Greenstein took his AB, AM, and PhD degrees at Harvard and then spent 11 years with the University of Chicago, at Yerkes Observatory. He arrived at the Institute in 1948 to create the graduate school of astronomy in conjunction with the new 200-inch Hale Telescope at Palomar Mountain.

For the next 24 years (9 of them semi-officially and 15 as the duly appointed executive officer) Greenstein diligently and successfully developed the department and observatory staff, served the larger Caltech community in many ways — was chairman of the faculty — and yet found time for distinguished research of his own, sharing, for example, in the discovery of quasars. He studied the properties of interstellar matter, notably its magnetic field, and the emission from gases in radio sources. He is noted for his research on the composition of stars through study of their spectra, the discovery of stars of peculiar composition and the explanations of these compositions from nuclear processes in their interiors. He is now especially interested in the final stage of star life — the white dwarfs.

In addition to professional societies, Greenstein is a member of the American Philosophical Society, the National Academy of Sciences (on whose council he has served), and formerly, the Harvard Board of Overseers. He is the author of nearly 400 technical papers and numerous popular articles. He has been an articulate spokesman for astronomy both to the general public and to many government boards and committees with whom he has consulted. He chaired the Academy Survey of Astronomy and Astrophysics for the 1970s. In 1964 he shared the California Scientist of the Year award with his colleague Maarten Schmidt. He has also received NASA's Distinguished Public Service Medal, the Gold Medals of the Royal Astronomical Society and of the Astronomical Society of the Pacific, and been Visiting Professor at Princeton, the Institute for Advanced Study, and the Bohr Institute. Jesse Greenstein has, in often quoted words, been "sitting up with the universe for 1001 nights" throughout a notable career. He hopes to keep on doing some of that, but also to find more time for other interests — for example, writing.



WILLIAM H. PICKERING

Professor of Electrical Engineering

Just over 50 years after he came as a student to Caltech in March 1929, William H. Pickering retired to become professor emeritus. He received a BS in 1932, an MS in 1933, and a PhD in physics in 1936, and then joined the faculty as an instructor in electrical engineering, becoming professor in 1947.

Pickering came to the Institute from his home in New Zealand, and in more ways than one he kept right on traveling — driving, for example, for six months in Europe as an undergraduate recipient of the Travel Prize. As a young faculty member, he did cosmic ray research with Robert A. Millikan, which meant ranging over most of the world to study geographical variations of cosmic ray counts.

In 1944 he became associated with JPL, and in 1950 he was made responsible for the development there of the U.S. Army's Corporal missile. In 1954 Pickering was appointed director of JPL, and for 22 years his name was synonymous with the development, first, of guided missile systems and then of space vehicles and missions — a considerable leap in travel outlook as well as in technological

achievement. Explorer I, the first U.S. satellite, was launched in 1958, just 83 days after JPL and the Army Ballistic Missile Agency were directed to prepare and orbit a satellite as a response to the USSR's Sputnik. Explorer was, of course, just the first in a succession of unmanned spacecraft developed at JPL under Pickering's leadership. There were also Ranger, Surveyor, Mariner, and Viking.

Pickering has been widely honored for his own achievements as well as those of the Lab. He is, for example, a member of the National Academies of Sciences and of Engineering. He has been awarded the National Medal of Science, the NASA Distinguished Service Medal, the Magellanic Premium of the American Philosophical Society, the Fahrney Medal of the Franklin Institute, the Guglielmo Marconi Award, and a dozen or so others — and he served as Grand Marshal of the 1963 Pasadena Rose Parade. In 1976 Pickering retired as director of JPL, but he has kept right on crisscrossing the globe, spending two years in Saudi Arabia at the University of Petroleum and Minerals and most recently visiting China to lecture on space research.

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JOHN R. PIERCE
Professor of Engineering

John R. Pierce becomes professor emeritus this month after 9 years on the Caltech faculty — 2 of them as executive officer for electrical engineering. He also put in an earlier 7-year stint as a student at the Institute, earning a BS in 1933, an MS in 1934, and a PhD in 1936. In the 35 years between the two periods he carved out a notable career at Bell Laboratories where he became Executive Director, Research, Communication Sciences Division. At Bell, Pierce was in charge of work on mathematics and statistics, speech and hearing, behavioral science, electronics, radio and guided waves. His chief work was in electron devices, especially traveling-wave tubes, microwaves, and various aspects of communication.

Communication, in fact, is the thing he knows most about. The Echo communication satellite, launched in 1960, was his idea, and the Telstar satellite, which first sent TV across the Atlantic in 1962, grew out of his ideas. In 1963 he was awarded the National Medal of Science for his work on communication satellites, and in 1966 he received one of the first Distinguished Service Awards of Caltech's Alumni Association. He is the recipient of a

good many other awards as well, including the Engineer of the Year award of the Institute for the Advancement of Engineering, the Medal of Honor of the Institute of Electrical & Electronic Engineers, the Marconi Award, and ten honorary degrees. Pierce is a member of the National Academies of Sciences and of Engineering, the American Academy of Arts and Sciences, and the American Philosophical Society, and a past member of the President's Science Advisory Committee. He is also a foreign member of the Royal Academy of Science of Sweden.

He is holder of approximately 100 patents, is the author of 15 books and many technical papers, and has been a science fiction author and devotee since he was in high school. (Another high school activity was building and flying gliders.) Among his other interests are Japanese culture, experimental psychology, and music (including electronic composition). He is currently working as chief technologist at JPL, and he has two more books under way — one of them is on the psycho-acoustics of music, that is, what goes into each of us that determines how we will hear music.



HOMER J. STEWART

Professor of Aeronautics

Homer Joe (for Joseph) Stewart came to Caltech as a graduate student in 1936 from the University of Minnesota. He has been associated with the Institute ever since, and this month he becomes professor emeritus. Stewart's 1940 PhD was in aeronautics and meteorology, and he began his faculty career teaching both of those subjects. In recent years his academic activities have primarily been concerned with problems of flight mechanics (including space flight missions) and theoretical and applied aerodynamics.

Part of Stewart's time has also been spent at the Jet Propulsion Laboratory, of which he was one of the founders. For several years he was chief of JPL's Research Analysis Section and participated in many pioneering rocket projects. Later he was division chief of the Liquid Propulsion Systems Division. He has also been a consultant to industry and a number of government agencies, including the Department of Defense and several Senate committees. While on leave for two years, 1958-59, he served in Washington as director of the Office of Program Planning and Evaluation for NASA.

In the early 1940s Stewart was a consultant on the famous Grandpa's Knob windmill in Vermont. While that machine produced more electrical power than any other ever had, it was not an economically feasible energy alternative at the time. Recently, with the rising costs of fossil fuels, the idea of energy from the wind has come round again, and Stewart has been in the vanguard of those trying to improve windmill efficiency and output. He has calculated, for example, that windmill blades up to twice as wide as present ones plus lower blade-tip speeds should increase efficiency up to 10 percent, especially at lower wind velocities.

With his colleague Ernest Sechler, in 1974 Stewart developed a course designed to provide a summary of windmill problems from a systems engineering viewpoint. These two also introduced "Case Studies in Engineering," a course that covered technological and managerial aspects of several large-scale engineering projects in detail. Stewart is a member of the American Meteorological Society, Sigma Xi, Tau Beta Pi, and the American Institute of Aeronautics and Astronautics.