The special committee of the General Faculty to prepare a memorial resolution for George Willard Watt, professor emeritus, chemistry, has filed with the Secretary of the General Faculty the following report.

John R. Durbin, Secretary
The General Faculty

IN MEMORIAM
GEORGE WILLARD WATT

George Willard Watt joined the community of scholars at The University of Texas at Austin in 1937 when he became an assistant professor in the Department of Chemistry. Prior to his arrival in Austin, he attended Ohio State University, Columbus, where he earned all of his degrees: BA (1931), MS (1933), and PhD (1935). His doctoral dissertation was entitled Electrochemical Investigation of Hot Corrosion. He worked as a research chemist for the Goodyear Tire and Rubber Company in Akron, Ohio (1935-37).

George Watt eschewed the limelight, preferring to work behind the scenes, but his influence, or effect, on the University, his profession, and his country was considerable. He was an adept politician, in the best sense of that word. For 43 years Watt used his faculty position at The University of Texas as a springboard for many of his other activities: in the American Chemical Society (ACS), in industry, and in government. He was assistant professor 1937-43, associate professor 1943-47, professor 1947-78, and professor emeritus from 1978. He supervised the work of 56 PhD students, thirteen master's students, and fourteen postdoctoral students. He was the author or coauthor of 158 scientific publications and eleven U.S., Canadian, and British patents. Many of his students went on to occupy prominent industrial, governmental, and, especially, academic positions.

Watt and his students made numerous contributions to inorganic chemistry, and it is fair to say that his efforts in this subdiscipline of chemistry aided the department in achieving national and international recognition. Collectively, the Watt research group successfully investigated the chemistry of non-aqueous solvents, particularly of ammonia—the first water-like solvent to be systematically investigated. Most chemical reactions occur in solution and the most common solvent for inorganic substances is water. Despite its abundance, water is limited in its use as a solvent by the temperature range in which it is a liquid, its physical properties that make it a solvent, its oxidizing and reducing properties, and its acid-base properties. Liquid ammonia became an important non-aqueous solvent through the work of Watt and his students. They demonstrated a host of different “chemistries” that could be made to occur in liquid ammonia, but that could not occur in aqueous solutions. One of the Watt group’s major contributions to liquid ammonia chemistry was the development of methods and techniques for the manipulation of liquid ammonia (which boils at -33°C or -28°F) at low temperatures if it is to be used in its liquid range, or at high pressures if it is to be used at room temperature. Such techniques allowed chemists to manipulate liquid ammonia solutions (and, indeed, other low-boiling solvents) much as they would aqueous solutions and other solvents. With such techniques, Watt and his students were able to develop new insights into the chemistries of metals, many of which are rare substances, such as the platinum metals, rhenium, samarium, and cesium.

Perhaps his most significant chemically-related contribution was made during the period 1943-45, when he took leave from the University to work with the Manhattan District, U.S. Corps of Engineers—the “Manhattan Project”—at the University of Chicago. He was group leader and associate section chief of the Plutonium Project, where he was responsible for and helped develop a process for isolating and purifying the plutonium used in the world’s first nuclear explosion at Trinity Site, Alamogordo, New Mexico, on July 16, 1945. Plutonium was also used in the bomb—code name “Fat Man”—dropped on Nagasaki, Japan, on August 9, 1945, which brought World War II to an end. Watt later assisted in the development of the hydrogen bomb.

He viewed the development of the atomic bomb as more than a military effort. In a statement released by the University on August 14, 1945, he said that while “most of the hundreds of scientists who were involved in the
work of the Manhattan Project were, of course, immediately concerned with the development of a military weapon, most of us thought of the work in its broader aspects—as an atomic power project rather than just an atomic bomb (military project)." Watt also was an early proponent of the obligations of scientists with respect to their discoveries when he said in the news release that "development of a force so powerful as atomic energy brings with it certain well-defined obligations...to turn these spectacular discoveries to constructive purposes."

Watt was clearly a proponent of the school of thought that considered the subject of chemistry an important component in the continuing evolution of society. This school of thought has its basis in the observation that many of the more interesting human remnants of antiquity and later ages involve the decorative arts, of which metalworking in bronze, copper, silver, and gold, for example, is perhaps the oldest manifestation of what can now be called the chemical arts. Included in this version of pre-18th century decorative arts (the period before chemistry started to be systematized) is also painting, which involved mineral pigments and, later, organic pigments. Thus, it is not surprising that Watt’s expression of chemistry included a strong component that involved industry. He was a consultant to the General Electric Company (1947–70), E. I. Dupont de Nemours & Co., and Exxon Nuclear Co. This strong connection to industry augured well for his students, many of whom obtained their first professional positions in industry and some of whom rose to important positions in those industrial settings.

Watt’s interest in education did not stop with the graduate program at The University of Texas. Among his written works are a number of textbooks (and laboratory manuals) specifically for undergraduates. Textbooks for entry-level students of chemistry included General Chemistry, with E. P. Schoch and W. A. Felseng (1st ed., 1946, and 2nd ed. with Felseng, 1951). In accordance with his philosophy concerning the societal usefulness of chemistry, Watt, with the assistance of his organic chemistry colleague, L. F. Hatch, published The Science of Chemistry, one of the earliest chemistry textbooks for non-science majors and one which stimulated a local and national interest in science education for non-science college students. Two editions of this text were published (1949 and 1954) with these authors; a third edition of this textbook, titled Chemistry, appeared in 1964 (with J. J. Lagowski as third author). Laboratory manuals appropriate for these textbooks and the students for whom they were designed were also published. Consonant with his belief in the importance of chemistry in the modern world, Watt was a member of the ACS for more than 45 years and he was very active in the affairs of that organization. He served on the Board of Directors of the ACS (director at large, 1969–73), as well as serving as chairman of many important committees of the Society, such as Membership Affairs; Nominations and Elections; Public, Professional and Member Relations; Grants and Fellowships; Finance; Manpower Utilization; and national meetings and divisional activities. He also served on the editorial boards of Chemical Reviews (1958–60), Advances in Chemistry (1961–63), and the Journal of Chemical and Engineering Data (1966–67).

Watt’s honors included the Renaud Foundation Award (1961), the Standard Oil of Indiana Foundation Award (1961), and the Southwest Regional Award of the American Chemical Society (1974). He was a Fellow of the American Institute of Chemists, and a member of Sigma Xi, Phi Lambda Upsilon, and Phi Kappa Phi. Watt won the first teaching award of the College of Arts and Sciences when John Silber was dean.

George Watt was born in Bellaire, Ohio, on January 8, 1911, and died at his home in Austin, Texas, on March 29, 1980, of complications from emphysema. He married Pauline Ida Price in 1934; the couple had three children, a daughter, Susan, and twin sons, George W. Watt II and Joseph Watt, and seven grandchildren. He added greatly to the prestige of the University in his extensive work in chemistry, in education, in industry, and with the federal government.

This memorial resolution was prepared by a special committee consisting of Professors Joseph J. Lagowski, Leon O. Morgan, and Orville Wyss (who contributed material about Professor Watt before his death in 1993).

Distributed to the Dean of the College of Natural Sciences, the Executive Vice President and Provost, and the President on October 5, 2000. Copies are available on request from the Office of the General Faculty, FAC 22, F9500. This resolution is posted under “Memorials” at: http://www.utexas.edu/faculty/council/.