

In Memoriam

James J. Christensen 1931-1987



Dr. James J. Christensen's life was devoted to service: service to wife and family; service to his profession in chemical engineering and to the field of thermodynamics; service to his university, the Brigham Young University and to his students, both graduate and undergraduate; and service to his church and community. This life of service was brought to a close by a sudden heart attack on September 5, 1987.

Jim's worldwide recognition as an outstanding thermodynamicist and a developer and builder of state-of-the-art calorimeters gave him and his wife a great opportunity to travel around the world. An outstanding feature of the family room of their home is a large map with the continents shown in bas-relief cut from plywood. The map is studded with pins, indicating the many places they have gone where they had the privilege of meeting new people and of teaching his methods to many. Jim and Virginia shared each other's life in this way as well as in taking dance classes together and in participating in the great books program over the last 28 years. He was dedicated to his four sons and a daughter and spent many hours with them in such activities as hiking. One of his sons followed him into the chemical engineering profession. Although Jim loved his professional career, he loved service to his family equally well.

Jim's service to the profession in the field of calorimetry and thermodynamics is unparalleled. He received a BS degree in 1953 and an MS degree in 1955 in chemical engineering from the University of Utah. He then went on to complete his formal education with a doctor's degree from Carnegie-Mellon in 1958. Part of his research work involved heat transfer to coils which later showed up in the design of the first-class calorimeters which he built. These

calorimeters have been developed commercially, are sold around the world, and are a standard for making precise calorimetry measurements. One of Jim's early ambitions was to build a calorimeter precise enough to measure the germination of a single seed but his designs greatly exceeded this. The early designs were crude compared with the later designs, but still required corrections for the energy input from a stirrer motor. His latest design was a calorimeter which would measure the heat of mixing at high pressure and high temperature.

Professor Christensen was also a prolific author. He has written or edited twelve books and co-authored fifteen major review articles. He has also published over 250 research articles in a wide variety of journals. He was instrumental in the founding of international conferences dealing with the chemistry of macro-cyclic molecules. He has been recognized by his peers, who selected him for the Sigma Xi annual lecture, a Blue Key lecture, and the Distinguished Faculty Annual Lecture at Brigham Young University. He also received the Maiser Outstanding Research Award and the Huffman Memorial Award as an outstanding thermochemist. Last August he was asked by the Chemical Engineering Division of the American Society of Engineering Education to give the 3M lecture which is based on outstanding research and contribution to the profession. (This lecture is scheduled for publication in a future issue of *CEE*).

Jim had a genuine love for his students, both graduate and undergraduate, and they returned that love through extra effort. He was recognized three times by the students as being the outstanding lecturer in the department, and he was recognized by the college as the outstanding teacher with the university's Maesar Outstanding Teaching Award (which is the counterpart of the outstanding research award.)

Jim took great delight in collecting "toys" which demonstrated the principles of thermodynamics and used them continually to interest the students. They included the familiar bird dunking its beak into water, rotating pinwheels, and his latest acquisition, a motor which worked by dipping one end in hot water. Jim's favorite courses were thermodynamics and creativity, and he exhibited creativity in teaching. He taught the students new ways of approaching old problems. He was dynamic in his presentations and gave an animated demonstration of the energy content of gas molecules by running back and forth, twirling and jumping up and down, colliding with students and walls. Almost every year during the student banquet, this little demonstration was repeated by the students as a sign of their regard. His annual backpacking trip

to the Uintah mountains with the graduate students was a highlight of each year.

He also served his community and church, the Church of Jesus Christ of Latter-Day Saints, in many ways. He was active in the education of his children and in the processes by which parents can contribute (P.T.A., etc.). He participated in great book discussion groups, he was a cub master for eight years, and demonstrated his love of teaching by teaching adult priesthood groups.

Jim's life of personal service has concluded. But his influence will continue to be felt in the lives of his family, his students, and his friends for many years to come.

Dee H. Barker

Roland Andrew Ragatz 1898-1987



Roland Andrew Ragatz, Professor Emeritus of Chemical Engineering at the University of Wisconsin, was born in Prairie du Sac, Wisconsin, in 1898, and died in Madison, Wisconsin, on May 30, 1987, at the age of 88. He is survived by his wife Nancy, who he married in 1930, a son Andrew (Ellen), a daughter Karen Roberts (Burnell), and seven grandchildren.

Professor Ragatz graduated from Prairie du Sac High School in 1915. He completed his studies for a BS degree (in the then new discipline of chemical engineering) in 1920 at the University of Wisconsin, Madison, and was immediately appointed instructor in chemical engineering. He remained on the teaching staff at Wisconsin until his retirement in 1969, except for a one-year leave of absence in 1929-30. While serving as a full time instructor, Professor Ragatz earned his MS degree in 1923 and his PhD degree in 1931, also in chemical engineering. He served as department chairman during three periods, totalling sixteen

years, and as associate chairman for five years thereafter.

Professor Ragatz' 49-year period of service to the University is one of the longest on record. He contributed significantly to his college and department and to his students during the important early period when the developing field of chemical engineering was emerging from an empirical discipline and evolving into a more scientifically based study. Basically devoted to teaching, Roland's areas of interest followed the needs of the department and its students in preparing them for industrial careers in a variety of often traditional manufacturing enterprises. In 1920 he began the development of introductory and advanced metallography courses, including laboratory studies related to the microscopic structures of metals, with emphasis on materials of construction. When instruction in this area was transferred to the Department of Mining and Metallurgy in 1948, Professor Ragatz turned his interest in materials to developing courses in plastics, again including a laboratory program. This early attention to materials science established the foundation on which the department's current strong program is based.

Starting in 1935, Professor Ragatz joined the late Olaf A. Hougen (and, during the 1940s, Kenneth M. Watson) in giving courses in material and energy balances and in thermodynamics for chemical engineers and participated in rewriting the corresponding parts (I and II) of the text *Chemical Process Principles*, which long has been a standard work in chemical engineering.

During his extended service as department chairman, Roland alternated with Olaf Hougen, and, in the words of Professor Hougen, "he assembled a staff well balanced in special talents for teaching and research, for undergraduate and graduate instruction, for variety in engineering and scientific interests, and with balance in laboratory and classroom instruction."

Roland also served long and efficiently as chairman of the College of Engineering committee on fellowships and scholarships, as well as on numerous other committees. He was a long-time member of the ASEE, serving on its Council, as chairman of its Chemical Engineering Division, and as organizer of the important Summer School for Teachers of Chemical Engineering (at Madison in 1948).

Professor Ragatz exemplified the ideals of the faculty of the University of Wisconsin: scholarship, research, public service, and above all, teaching.

*Roger J. Altpeter
Wayne K. Neill
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