



Peter J. Wyllie, IUGG Fellow

USA

Peter J. Wyllie retired in 1999 as Emeritus Professor of Geology at the California Institute of Technology. After high school, in 1949, he was Heavyweight Boxing Champion of Royal Air Force Scotland. He graduated from the University of St. Andrews (Scotland) in Geology and Physics (1952, 1954, 1958, D.Sc.hc 1974), spending 1952-1954 as geologist with the British North Greenland Expedition. From Assistant Lecturer at St. Andrews (1955-56), he moved to the Pennsylvania State University (1956-59) as Research Assistant, then to Leeds University (1959-61) as Lecturer. Professorial appointments followed at Penn State (1961-65), the University of Chicago (1965-83) and the California Institute of Technology (1983-99), with terms as Department Chairman in Chicago (1979-82) and Caltech (1983-87), and Academic Officer at Caltech (1994-99) until retirement.

Wyllie has worked with many national and international committees and societies, culminating with 12 years on the Executive Committee of the International Union of Geodesy and Geophysics (Vice-President 1991-95, President 1995-1999, Past-President 1999-2003; awarded IUGG Honorary Fellowship and Membership, 2015). He was also President of the Mineralogical Society of America (1977-78; V. Pr. 1976-77; Past-Pr. 1978-79), and the International Mineralogical Association (1986-90, V. Pr. 1978-86, Past-Pr. 1990-1994). These international commitments reverberated with his appointments to US National Committees for Geology (1978-82, 1999-2000), IUGG (1980-84), and IUGS (1991-99).

Wyllie's career started with field mapping as he drove his husky-dog team on glaciers through unexplored mountains in Dronning Louise Land (1952-54), and continued with petrological research on Scottish picrites for his Ph.D. with Harald Drever (St. Andrews). In 1956, Drever steered him to a Research Assistantship with Frank Tuttle at Penn State, where he was seduced by experimental petrology. He embarked on laboratory experiments that reproduced conditions initially at crustal pressures, and eventually reached pressures and temperatures corresponding to depths of 150km. Phase equilibrium studies in silicate-carbonate-volatile component systems were designed to calibrate petrological and geophysical processes through the Earth's upper mantle and crust. Wyllie and his colleagues determined many phase diagrams, using natural rocks with added volatile components, and synthetic systems involving silicate-carbonate-H₂O-CO₂. Experiments, designed with specific problems targeted, included applications to granitic intrusions, andesites, kimberlites and carbonatites. The investigations generated more than 325 scientific articles, which often incorporated applications into reviews involving global processes. Wyllie's textbooks *"The Dynamic Earth"* (1971) and *"The Way the Earth Works"* (1976) brought the plate tectonics revolution into the classroom.

Honors include the Polar Medal (1954, H.M. Queen Elizabeth); Quantrell Award (teaching, 1979, Chicago); Mineralogical Society of America Award (1965); Wollaston Medal (1982, England); A-G-Werner Medal (1987, Germany); Leopold von Buch Medal (2001, Germany); and the Roebing Medal (2001, USA). In 1996, he was appointed Honorary Professor of the China University of Geosciences, Beijing. A Symposium at the 2009 Annual Goldschmidt Conference in Davos, Switzerland, was organized *"in honor of Peter J. Wyllie for his life-long contributions by means of experimental petrology to understanding how the Earth works."* Presentations were published in a special issue (378pp) of the Journal of Petrology (2011).

Wyllie is a Fellow or Foreign Member of the National Science Academies of the USA (1981), Britain (Royal Society, 1984), Russia (1988), India (INSA 1991 & NAS 1992), Europe (1996), and China (1996). He is also Honorary Member or Fellow in Mineralogical, Geological, or Geophysical Societies of five countries (Scotland, England, Russia, Germany, and India), as well as in the American Geophysical Union, the Geological Society of America, and the Mineralogical Society of America.