



Dr John Mundy - Biography

(Retired US Department of Energy and Argonne National Laboratory)

I attended Marlborough Grammar School before being conscripted into the Royal Air Force in 1950. After military service I started my education in physics at the University College of the South West in Exeter. I obtained an external London degree in 1955, the year the university college obtained university status and I stayed as a graduate student and obtained my doctorate in 1958. My thesis was on thermal diffusion in gases and the study of mass transport remained the dominant theme for the rest of my research career. After graduate school I spent two years in Gerhardt Herzberg's Division of Pure Physics at the National Research Council of Canada in Ottawa. I studied the effect of pressure and temperature on thermoelectricity in alkali metals. In 1961 I returned to studying thermal diffusion in gases as a visiting scientist at the Institute for Molecular Physics at the University of Maryland. After the excitement of the solid state physics group in Canada, I quickly lost interest in gaseous diffusion and spent the second year studying the effect of temperature and pressure on potassium diffusion in potassium chloride. In 1962 the British 'Reverse the Brain Drain' committee awarded me a senior research fellowship that I could take to any UK university or research institute of my choice. Alan Le Claire invited me to his group in Mick Lomer's Solid State Physics Division at AERE Harwell. I collaborated with Les Barr who had started the first isotope effect measurements in sodium chloride and I applied the same techniques to a study of isotope effects in sodium as a function of temperature and pressure. Alan Lidiard, head of theoretical physics at Harwell, collaborated with the group.

At that time, Harwell may have been the best place to study diffusion. A steady flow of sabbatical year visitors enhanced the value of working in a first class laboratory. Steve Rothman and Norm Peterson from Argonne National Laboratory were two of the visitors and after a year as a visiting professor at the Chalmers Techniska Hogskola in Goteborg, I joined Norm's diffusion group at Argonne in Chicago.

I remained on Argonne's staff for most of the rest of my career making measurements of the effects of mass, pressure, temperature, and solute additions to bulk and interface diffusion in metals, solid electrolytes, and glasses using radiotracer and SIMS techniques. I also studied quenched-in defect resistivity to examine defect formation and migration energies. I took two sabbatical years in Germany, the first at Werner Schilling's Institut fur Metallforschung at KfA Jülich, and the second at the Max Planck Institut fur Metallforschung Stuttgart with Alfred Seeger. In 1989 I became an Associate Editor with the Journal of Applied Physics and continued that work until 2002. In 1993, I was nominated to work as a program manager with the Basic Energy Sciences (BES) Division of the Department of Energy in Washington DC. I enjoyed the very varied work, monitoring programs at both universities and national laboratories, evaluating new research proposals, assessing potential research for future research directions, keeping an eye on graduate students that the BES programs were funding, and trying to cooperate with other government departments that funded similar research programs. I remained with BES until my retirement in 1998. I have not travelled 'a random path' in my career. It is difficult to explain to my fellow retirees what I did for a 'living' but I feel very fortunate to have enjoyed every day that I went to work and to have the opportunity to work with some very talented people.

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