

Professor Alvin W Nienow FEng, BSc(Eng), PhD, DSc, Dhc, CEng, CSci, MAChE, FIChemE, FHEA, HonMCzSChE – 1937-2022

An Obituary and Memorial by Arthur W. Etchells DuPont Fellow emeritus

Our friend and colleague Alvin Nienow passed away in October. He had been doing poorly for about a year, but when my wife and I visited him about two weeks before his death he was in good spirits. We spent a pleasant Sunday afternoon chatting on the balcony of his flat overlooking the Thames. During the pandemic he kept some communications going by Zoom particularly with his North American mixing friends.

He was a giant in the field of fluid mixing and his contributions to the whole field were immense. We have attached the write up from the University of Birmingham UK to give one an idea of the breadth of the person we have lost.

A good place to begin in understanding any aspect of fluid mixing is with the papers of Nienow et al. in a specific sub-field such as solids suspension, gas dispersion, liquid dispersion, micro-mixing etc. In these papers one will find some of the most significant work in the field of fluid mixing. In his later years Alvin began working in the field of bioprocessing and there also transformed especially the understanding of cell damage and scale up.

Alvin enjoyed industrial feedback and recognition of his work. His interest was understanding the phenomenon by careful and often clever experimentation. He was not particularly interested in application and left that to others. Since its founding about thirty years, he consulted with the Fluid Mixing Process consortium now part of FramatoneBHR. His jovial banter in the morning at morning steering committee meetings, always seemed to get those sessions off to a good start. He asked revealing and guiding questions always getting to the core of the topic. He was frequently puzzled by how long it took a piece of his work to become a popular topic in the broader mixing community discussions. He would often mutter “we did that years ago” which was always true.

I became deeply involved with Alvin when he asked me to join him and Professor John M. Smith in a series of industrially oriented courses they taught in Sweden and soon after we received similar proposal for a series of courses for industry from Center for Professional Advancement. These courses lasted several decades until Professor Smith’s retirement and death and then Alvin and I continued the courses for about a decade more. I was to bring in the industrial angle versus the two academics.

Together we went through the eras of 35 mm slides that did not always fit, and film reels that did not always wind correctly to Mylar® overheads and VHS videos, to computers and PowerPoint slides. Initially we did live experiments with equipment supplied by friends at Lightnin. Our styles of lecturing were very different. Ever dedicated to his work during the breaks for the lectures Alvin would be in his room proofing a thesis or a forthcoming paper. Alvin was a quiet but forceful speaker. His slides were complete often consisting only of figures from his papers. Alvin was kind, funny, and always ready to talk and help.

Our courses in Sweden were in the months of February and March when the Scandinavians had nothing better to do than attend courses and in November in Florida which the professors found delightful. Our wives attended a number of these events and became good friends as well.

Alvin was an experimentalist. He loved analyzing data. His remarkable output was due to the teams he put together with his capable lieutenants who ran, the teams of graduates, undergraduates and technicians who did the work. He brought in students from around the world, from the UK, the USA, China, Japan, Poland, Italy, Germany, France, Malaysia and many other places.

He himself also travelled around the world often with his wife Helen, who he affectionally called Sparks. If any related conference needed a keynote speaker Alvin was sure to be there and if any new journal needed a special article he was there.

Alvin particularly enjoyed the North American Mixing Forum (NAMF) conferences with their combination of technical discussion and fun. Several decades ago, NAMF gave Professor Nienow an award for his outstanding contribution to the science and technology of mixing.

Alvin loved life sports, music, and dancing. On our teaching jaunts he would drag us through the snow-covered old town of Stockholm or the warm winter streets of Fort Lauderdale, hunting for elusive jazz cafes. Alvin was proud of his family, children and grand children and their accomplishments. He enjoyed trips with his family to Cornwall, skiing in France and other remote places.

To many Alvin appeared and acted like a typical beer and cricket Englishman. He was actually half American as his father had moved to the United Kingdom after World War I and married an English girl and lived in London. Alvin was such a good athlete that he considered being a professional cricketer but decided on chemical engineering. This was Chemical Engineering's gain. He considered claiming American citizenship but decided staying in the United Kingdom. After University he tried industry but quickly went back to education and research.

To many Americans Alvin looked and acted like an Englishman with a continental dash because of the moustache and goatee.

An example of this joy in life were the blue alligator shoes. While visiting us in Philadelphia Alvin and I passed by a men's clothing store window and a pair of blue alligator shoes caught Alvin's eye. We passed on to dinner but when his retirement came up later that year I got his shoe size from Helen, Alvin's wife, and purchased them. At the rather formal retirement party I gave Alvin the shoes and he was delighted. They went on immediately along with an appropriately wild pair of socks supplied by Richard Grenville. On many occasions after that the shoes were produced if there was to be music or dancing.

We and the fluid mixing community extend our sympathy to his wife and family and all his friends for the loss we mutually feel. He will remain long in our memory.

If those reading this have other memories or comments please send them to the editor.

Professor Nienow was the first Professor of Biochemical Engineering (now Emeritus) in the School of Chemical Engineering at the University of Birmingham and Director of Biochemical Engineering from 1989 to 1999. He is also a Visiting Professor at both Loughborough and Aston Universities. He has honorary doctorates from Loughborough and the West Pomeranian University, a DSc from University College London and is a Fellow of the Royal Academy of Engineering and the Institution of Chemical Engineers. He has held over 80 grants, published over 400 refereed papers and been cited more than 5,000 times.

- Fellow of the Royal Academy of Engineering, 1984
- Honorary Member of the Czech Society of Chemical Engineering, 2008
- Fellow of the Institution of Chemical Engineers, 1981
- Member of the American Institute of Chemical Engineers, 2000
- Chartered Engineer, 1982
- Chartered Scientist, 2003

Awards

- The Moulton Medal; Institution of Chemical Engineers for paper, “Particle-Gas-Liquid Mixing in Stirred Vessels (Part I to IV)”, Chemical Engineering Research and Design (with C.M. Chapman, M. Cooke and J.C. Middleton) for “the most notable contribution during 1983 to their published records”, 1984
- The Jan E Purkyne Medal; The Academy of Sciences of the Czech Republic for services to Czech Chemical Engineering, 1993
- Eminent Speaker; Institution of Engineers (Australia) Chemical Colleges, 1999
- The Donald Medal; Institution of Chemical Engineers Subject Group on Biochemical Engineering for "lifetime contribution", 2000
- Lifetime Recognition Award”; European Federation of Chemical Engineers for “Significant Lifetime Contribution to Mixing Research and Practice”, 2003
- Special Issue, Transactions of the Institution of Chemical Engineers, Part A, published in his honour on the occasion of his retirement, September 2004
- Honorary Life Chairman, Institution of Chemical Engineers Fluid Mixing Processes Subject Group, Sept., 2004
- Honorary Member of the Czech Society of Chemical Engineering, 2008
- Medal no 441 of Szczecin University of Technology for ‘Special Contributions’ (as part of its celebrations as it combined with the Agricultural Academy of Szczecin to form the West-Pomeranian University of Technology), 2008
- Plenary Lecture Award, Pharmaceutical Group, American Institute of Chemical Engineers, 2009

- Doctor honoris causa, West Pomeranian University of Technology, Szczecin, Poland, 2010
- Paper, "X-ray Studies of Cavern Sizes and Mixing Performance with Fluids Possessing a Yield Stress", (with TP Elson and DJ Cheesman), Chem. Eng. Sci., 41, (1986), 2555-2562 voted one of the 21 most influential papers on mixing by the AIChE's North American Mixing Forum, 2011
- Doctor honoris causa, Loughborough University, UK, 2012
- Peter Dunnill Award for Outstanding Contribution to UK bioprocessing, 2018

Book

- as editor, with Norman Harnby and Michael Frederick Edwards (1985). *Mixing in the process industries*. London: Butterworths. [ISBN 0408115742](#). and chapters and hundreds of technical publications