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Personalities in Polymer Science



Peter Hariolf Plesch

When I asked some of Professor *Peter Plesch's* colleagues what are the most notable characteristics of Peter Plesch, there was a consensus. His life has been characterized by individualism and a frequent disregard of rules. His work is marked by originality and inventiveness and he is known as a most remarkable Renaissance man.

Peter Plesch was born on February 14, 1918 in Frankfurt am Main, of a Hungarian father and a German mother. He began his secondary education at the Collège Français in Berlin where most subjects were taught in French. In 1933 he

was forced to emigrate with his family to England and continued his schooling at Harrow School, one of England's most distinguished Preparatory Schools. There he chose physics and chemistry instead of the more classical curriculum, because even in his pre-teens he had developed a passion for the sciences. His basic instruction in the fundamentals had come from his father, a doctor and physiologist. He entered Trinity College at Cambridge in 1936 where he was drawn towards physical chemistry. Even before he graduated he did his first research in the Colloid Science Department, where there were many scientists, including polymer scientists, of great distinction.

He received his B.A. in 1939 and was awarded the Sc.D. of the University of Cambridge in 1970. In 1952 he became a Fellow of Chemical Society which is now the Royal Society of Chemistry.

From 1940-42, Peter Plesch was a Research Chemist at the British Pottery Research Association (now British Ceram) and from 1942-44 at Cefoil Ltd. (now Kelco). There Peter Plesch developed a rigid calcium alginate foam to replace Balsa wood in advanced fighter aircraft.

In 1944 Peter Plesch joined the research group of Michael Polanyi, Professor of Physical Chemistry at the Manchester University. The war-time task of this group was to make the polymerization of isobutene a reproducible as well as a repeatable reaction. Within a few months the so-called co-catalytic effect of water with titanium tetrachloride was discovered, which opened the way towards understanding cationic polymerizations and formed the core of Plesch's Ph.D. thesis. Cationic polymerization and the refinement of its mechanism would be Plesch's scientific commitment for the next 40 years. In 1946, Peter Plesch became an Assistant Lecturer at Manchester University.

In January 1951, Plesch joined the newly founded University College of North Staffordshire, Britain's first post-war University (since 1960 the University of Keele) as the first physical chemist and second-in-command of the Chemistry Department. In March 1952, he organized there the Second International Symposium on Cationic Polymerization.

During 1951 to 1978 Peter Plesch progressed from Lecturer to Reader at the

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University of Keele, and in 1978 was awarded a Personal Chair at the University in recognition of his research accomplishments. Professor Plesch retired in 1985, but is continuing his research activities at Keele.

In the summer of 1952 Plesch made his first of many lecture and consulting trips through the USA and Canada lecturing in many universities and industrial laboratories and attended his first Gordon Conference. His forthright style as a lecturer and his wide knowledge established him as the leading authority on cationic polymerization.

Peter Plesch had been a Senior Visiting Scientist at Polymer Corporation (now Polysar) in Canada (1956), a Visiting Professor at the University of Mainz (1976) and a Visiting Professor at the Centre sur les Macromolécules Charles Sadron, Strasbourg, in 1977. In 1994 he gave the Leo Baekeland Lecture to the Society of Chemical Industry in London.

Peter Plesch has written one and edited two books on chemistry and has published more than 150 scientific papers in International Journals. He has also published numerous articles related to his interests in Chinese glass and other works of arts.

Up to his retirement in 1985, over 40 research students and Post-Docs from many countries helped Plesch to develop a unique experimental style.

In a recent autobiographical paper Plesch divided his work into *reactive* research activities, testing the results and ideas of others which to him seemed unlikely, and *proactive* enterprises by which he opened up new areas. Both of these activities always involved experimentation and theoretical developments. He was the first to use, in 1965, the now fashionable supercritical carbon dioxide as a polymerization medium. Plesch also found, that certain apparently cationic polymerizations, including some living cationic polymerizations, are more likely to be propagated by modified reactive esters, a reaction type which he called pseudo-cationic. Plesch's group was the only one which studied the cationic polymerization of both alkenes and 1,3-dioxacycloalkanes.

Plesch always prided himself on being essentially just a chemist (not a this-chemist or that-chemist), meaning that he would tackle any branch of the subject which he deemed necessary to solve the

problem on hand. For example, when he wanted to study the polymerization of dialkyl ketene acetals he improved the difficult methods of synthesis; when he wanted to study organic cations by non-spectroscopic means he developed systematic studies of the polarography of carbenium ions and of oxonium ions.

As a referee and reviewer Plesch is a notoriously fierce defender of the English language, a ruthless critic of second-best techniques, inadequate results and sloppy thinking, and yet he has received innumerable "thanks-for-help" from the authors he has criticized.

Peter Plesch's range of interests outside chemistry is wide, but he has made his special mark as a collector of Chinese and Korean antiquities and of old and ancient glass, including Chinese glass. He relishes the fact that in his 50's he was asked in the same year to apply for a senior chair of physical chemistry in Germany and for the curatorship of a gallery of Oriental Art in the U.S.A. He did neither, preferring to stay in England.

Since 1963 Peter Plesch has been married to Traudl who is a well known fund-raiser for charities in the UK. They have 4 surviving children from their previous marriages and seven grandchildren ranging in age from 9 to 28.

This article was submitted by Otto Vogl, Herman F. Mark Professor, Polytechnic University, Brooklyn, NY, USA in cooperation with Traudl Plesch.