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Personalities in Polymer Science



Per Gustaf Magnus Flodin

Per G. M. Flodin has made numerous significant contributions to the development of polymer science in Sweden. He has shown that fundamental research can be transformed into practical enterprises and demonstrated that scientific and industrial thinking can coexist very fruitfully together.

Per Flodin was born on September 29, 1924 in the parish of Ljushult just outside of the City of Borås (and is now a suburb of Borås which is situated in western Sweden 40 miles east of Göteborg (Gothenburg)). He was the third son of Oscar Flodin, a clothing manufacturer and Sigrid, born Johansson. Per has two brothers. Per went to elementary school in Borås and was graduated from Högre Allmänna Läroverket in Borås in 1943.

After graduation from High School he enrolled in Uppsala University, Uppsala, Sweden and received his B. Sc. in 1950. He subsequently began his graduate studies at the Institute of Biochemistry of Uppsala University and joined the research group of Professor Arne Tiselius who had received the Nobel Prize a few years before. Per Flodin's professional life involved fundamental as well as applied scientific work. He was always involved with the application of his scientific inventions and innovations into practical applications. Even when he worked with Tiselius for his masters degree, Per Flodin was assigned the task to develop a pre-

parative electrophoresis technique for proteins, which led to his M.S. thesis on "Zone Electrophoresis in Packed Columns". In 1953 Per Flodin received his M.S. from the department of biochemistry.

Already in 1950 Per Flodin was appointed Instructor at the Department of Biochemistry and served until 1953. In 1954 he joined AB Pharmacia as Research Chemist. During this time period, Per pursued his Ph.D. studies, while at Pharmacia, under the overall guidance of Professor Tiselius. While Per Flodin was working at Pharmacia, a number of products were invented and commercialized, separation materials based on crosslinked gels of cellulose, starch and dextran. The technique of Gel Filtration was exploited. His Ph.D. thesis was entitled "Dextran Gels and their Application in Gel Filtration".

In 1962 Per Flodin was invited by the Perstorp AB Company, a company which was involved in the conversion of formaldehyde to polyols and various thermosetting resins to take over the Research Department as Director of Research. One of the projects was the study to evaluate the feasibility of developing a proprietary process for the preparation of formaldehyde copolymers based on trioxane and 1,3-dioxolane.

After 10 years he decided to return to academia and accepted in 1972 the position of Associate Professor of Polymer Technology at the Royal Institute of Technology in Stockholm, Sweden. During his years at the Royal Institute of Technology in Stockholm, Per played a leading role in the establishment of the Swedish Plastics and Rubber Institute and was its first Director.

In 1977 Per Flodin received an invitation to the newly created position of Professor of Polymer Technology at the Chalmers University of Technology in Gothenburg. He served at the position of Professor and Head of the Department from 1977 to 1990 until he retired and became Emeritus Professor in 1991. At Chalmers Technical University Per Flodin served also as Dean and as member of the Board of the Faculty of Engineering.

At Chalmers Per Flodin resumed his research on gels. He was concerned with physically crosslinked gels formed from linear polymers like polyacrylonitrile, polyamides and cellulose esters, and particularly their capability to remain

porous in the absence of solvents, and gel bound functional groups.

Flodin became also very early interested in main chain liquid crystalline polymers, their spinning behavior and their fiber properties.

Per's early work with proteins has left a predilection for such macromolecules and he believed that polyurethanes were good candidates for this purpose. He spent some time working on functionalized synthetic gels based on hydrophilic polyurethane-ureas.

On the national level, Per Flodin was a member of the Scientific Advisory Board of the Swedish Board for Technical Development for many years and the deputy Chairman of the Swedish Chemical Society. He served on two Committees of the Swedish Board of Higher Education, one on Material Science and one on Chemistry. For 10 years he was the Swedish representative on the Committee for polymer science of the European Science Foundation and on the IUPAC Committee for Macromolecular Chemistry.

The results of his scientific work are recorded in over 100 articles, one book, several book chapters, and in about 40 patents. He has been on the Editorial Board of *Kemisk Tidskrift* and *Reactive Polymers*.

Per Flodin has been on the Board of AB Svensk Färg and The Swedish Plastics and Rubber Institute and The Research Foundation of Karlshamn AB. He is on the Board of Polyrand AB and Artimplant AB. He has been a member of scientific advisory boards of several major Swedish companies, and now serves as research director of Artimplant AB, a manufacturing company of polymers for biomedical use.

Flodin is a Member of the Swedish Academy of Engineering Science and the New York Academy of Sciences. He also received a number of Awards. In 1963 The Arrhenius Medal in Gold of the Swedish Chemical Society, the Gold Medal of the Swedish Academy of Engineering Science (1968), the Tywett Award in Chromatography (1979) and the Medal of the University of Helsinki. Flodin is also, since 1969, an honorary member of Västgöta Nation, University of Uppsala.

Per's hobby is playing golf; he is also an enthusiastic and excellent photographer.

In 1952, Per Flodin married Kerstin Meijel of Halmstad, Sweden. They have

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two children, Magnus, born in 1958 and Johan, born in 1962. The Flodins have one granddaughter.

This article was prepared by **Otto Vogl**, Department of Polymer Science and Engineering, University of Massachusetts, Amherst, MA, 01003, USA, in cooperation with Kersten Meijel-Flodin.
