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52. Bengt Ranby

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Profiles in Polymer Science

Professor Bengt Rånby

When we are thinking of Cellulose Chemistry, when we are thinking of Photochemistry, especially of photochemistry of polymers, we think of **Bengt Gustaf Rånby**-Professor Emeritus of the Royal Institute of Technology. This is one of the most prestigious Institutes of higher



Bengt Rånby

learning and of scientific research in Scandinavia and in the world.

Not only do we think of regular polymer science, but with Bengt Rånby we are thinking of the "Renaissance man". Bengt Rånby knows the Latin names of all the European plants and many of the plants of the entire world. After all, he came from the school, the University of Uppsala, where Linné named the plants and revolutionized the thinking of the world of Botany.

Bengt Rånby was born in Niemisel, Råneå, in Sweden on April 5, 1920. He was raised and educated in Sweden, receiving his baccalaureate in Lund in 1938. Bengt then studied at the world-famous University of Uppsala, Sweden (Linné's alma mater), receiving the B.Sc. in 1940, the M.S. in 1945, and the Ph.D., with the famous Professor and Nobel Laureate, *The Svedberg*, in 1952. Rånby's thesis was concerned with the "Fine Structure and Reactions of Native Cellulose." Shortly after receiving his Ph.D., he was appointed "Docent" and University Lecturer in Physical Chemistry, an important recognition in Sweden at that time, and he spent the time from 1952-1955 in Uppsala. While Bengt was still a member of the teaching staff of Uppsala University, he decided to go abroad and spent one year in the U.S., in New York, at the Polytechnic Institute of Brooklyn, where he worked on synthetic polymers with the legendary Professor *Herman Mark*.

In his dissertation, Bengt Rånby resolved the microfibrillar structure of native cellulose and showed that its crystal lattice is thermodynamically metastable. This discovery is now - 40 years later - understood as the result of the enzymatic biogenesis of the fibrils.

After his return to Sweden, Bengt Rånby decided he needed more experience in the New World again, and took employment at the American Viscose Corporation in Marcus Hook, PA. After 3 years he was invited to consider a position as Professor of Pulp and Paper Technology at the State University of New York and as Director of the Empire State Paper Research Institute, in Syracuse, NY, which he gladly accepted. During this period of his career he spent 6 years in the United States.

In 1961 he received a call from the Royal Institute of Technology to consider a position of Professor of Polymer

Technology, a Chair which was specially created for him in the field that he represented. Bengt accepted this position and held this Professorship for 25 years until his retirement in 1986. For a 4-year period Bengt Rånby was also the Dean of the School of Chemistry and Chemical Engineering.

Rånby had a tremendous impact on polymer science worldwide and especially on polymer science in Scandinavia. Although a Nobel prize was awarded to Svedberg for his research on "Disperse Systems" and the development of the ultracentrifuge, the prize was for physical chemistry; polymer science then was not an established and separately recognized discipline. It was left to his student Rånby to establish Stockholm and the Department of Polymer Technology as an institution of higher learning in polymer science that is among the elite in this field in the world.

Rånby achieved this leading position because of his personal scientific competence, his leadership in science, and his exceptional personality. He has traveled, lectured, and consulted extensively worldwide in polymer science, catalysis, on photochemistry and on radical reactions. In his photochemical work he has identified the intermediate radicals and the mechanisms in degradation and modification of polymers, and also invented promising methods for crosslinking and surface modifications of fibers and films, using photoinitiation with UV light.

Over the years Bengt Rånby was asked to teach in many scientific institutions. He was a visitor at a number of universities - at North Carolina State University and the University of Massachusetts in the U.S., the Universities of Kyoto and Hokkaido in Japan, and the University of Science and Technology of Hefei in China.

Many honors have been bestowed on him: Honorary doctoral degrees from the University of Helsinki, Finland, and the University of Wroclaw, Poland; the Cellulose Award of the American Chemical Society, the Herman F. Mark Medal of Austria and the Great Prize of the Royal Institute of Technology.

Bengt Rånby is a Member of the Royal Academy of Arts and Sciences, Uppsala; the Royal Swedish Academy of Engineering Sciences, Stockholm; and the Finnish Academy of Sciences. Since 1985 Professor Rånby has been a Member of

Columns

the Royal Swedish Academy of Sciences, and also a member of the Executive Board.

Rånby's research reaches many fields, and he has contributed in all the areas that he studied fundamentally and with great success. His work in cellulose, starch, and synthetic polymer chemistry using electron microscopy, x-ray diffraction, electron spin resonance, and photochemical methods is considered a classical contribution to worldwide science. He has published more than 400 papers in scientific journals and is on the Editorial Board of a substantial number of those journals.

In Scandinavia, Bengt Rånby was and is sought as a consultant and advisor by Industry and Government. For many years he was on the Board of the Scandinavian Paint Institute and on the Advisory Boards of several companies and organizations.

He was the founder of the Swedish Polymer Society in 1984, was its president for nearly 10 years and one of the founders of the European Polymer Federation.

These examples show Rånby as the scientist, teacher, lecturer, and scientific politician of global stature. He is an exceptional personality well known for his keen wit, excellent sense of humor, and gentle manner. Over the years he was and still is in great demand as lecturer on subjects ranging from photochemistry, polymer chemistry and general philosophy.

Bengt Rånby has been married since 1945 to Aina Ingeborg Charlotta Halterantz; they have 3 children.

**An article submitted by Otto Vogl,
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