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Kyosti Vilho Sarkanen Scholar, Teacher, Researcher, Scientist, Leader 25 September 1921-24 December 1990

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KYOSTI VILHO SARKANEN

TRIBUTE

KYOSTI VILHO SARKANEN
SCHOLAR, TEACHER, RESEARCHER, SCIENTIST, LEADER
25 September 1921 - 24 December 1990

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To honor **Kyosti Vilho Sarkanen**, his professional associates are dedicating to him the research papers included in this memorial volume. It is a great privilege to have this opportunity to write about the life of my friend and colleague.

Professor Sarkanen was born in 1921 in Helsinki, Finland, and was graduated in 1939 from the Viipure (now Russia) Classical Lyceum together with his long-time friend Emeritus Professor Johan J. Lindberg, University of Helsinki. In the 1939-1944 wars, Lt. - Field Artillery and Chemical Warfare, he was badly wounded.

During 1944-1947, he was a student at the University of Helsinki (along with his wife, Hanna; married 1945) and completed the degree of Candidate in Philosophy (Bachelor of Science). From 1947-1951, he served as Research Chemist, Finnish Pulp and Paper Research Institute in Helsinki. His first publication in 1950 was concerned with tall oils from kraft pulp mills.

In 1950, Kyosti wrote to me at the University of Washington (UW) seeking a Fellowship for graduate study in the United States. I responded that no funds were available and sent his letter to Professor Conrad Schuerch at SUNY (State University of New York) College of Forestry, Syracuse, New York, who did have support available. Kyosti earned his Master of Science degree in the short time of nine months.

After serving for one year as Director of the Laboratory of Kajanni Ltd., Kajaani (northern Finland), he returned with his family (now including daughters Leena and Anna-Mari) to Syracuse and completed his degree of Doctor of Philosophy with Professor Schuerch in 1952. His dissertation topic was: Ethanolysis of Spruce Wood. Five papers were published with Professor Schuerch

who recently said: "He was my first graduate student. No one could ask for a more productive and independent student".

During the 1956-1961 period, he continued work at Syracuse as a post-doctoral Fellow, Research Associate; Assistant Professor and then Associate Professor and published papers with several collaborators.

His first doctoral student was Professor Carlton Dence, now also of SUNY at Syracuse. Professor Dence and Dr. Steve Lin, co-editors, have dedicated their *Methods in Lignin Chemistry* (in press) to Professor Sarkanen. Professor Dence has said: "Looking back, he made the greatest impression on my professional life of anyone I ever met".

In 1961, Kyosti and I breakfasted in New York and he indicated interest in a professorship at the UW. Soon thereafter, with family, he moved to Seattle as Associate Professor (and then Professor in 1966) with appointments both in the College of Forest Resources and in the Department of Chemical Engineering. Here he continued teaching and research activities throughout his career, mainly in the fields of cellulose, lignin and wood chemistry, high polymers, and in pulp and paper technology. In 1962, Kyosti and the writer were co-chairs of an International Symposium on Lignin Chemistry at UW. During the 1971-1975 period, he was Chair of the Wood and Paper Division of the College of Forestry Resources.

Over the years, he published more than 150 research papers on lignin, polysaccharides, biosynthesis, pollution abatement and several other topics. He served as a consultant to many industrial organizations including Weyerhaeuser, McMillan-Bloedel, American Cyanamide, Crown Zellerbach, Hercules Powder, W. R. Grace, Stone - Webster, and others.

In 1971 came the BIBLE: Lignins; Occurrence, Formation, Structure and Reactions with Sarkanen and Ludwig as Co-editors (Interscience-John Wiley Publishers). Wife Hanna, a graduate chemist, gave indispensable assistance in bringing this monumental work to completion.

Dr. Charles Ludwig (Georgia Pacific Company, Bellingham, WA), recently said: "The years Kyosti and I spent editing the book will always remain a supreme highlight of my life".

Lignins has been, and now, twenty years later, continues to be respected around the world. An exchange student, Dr. Chirkin from the St. Petersburg Academy of Forest Sciences, translated it into Russian. I understand that it has been, or is being, translated into Chinese.

Many honors came to Professor Sarkanen. In 1971, he was elected Fellow in the International Academy of Wood Sciences.

Additional awards were: Visiting Professor at the Technical University of Helsinki (1971); Chair, Wood Chemistry Committee of TAPPI (1972-1974); Honorary Member, Society of Finnish Chemists (1972); Executive Committeeman, Division of Wood, Fiber and Cellulose Chemistry, American Chemical Society (1973); Visiting Professor, Institute of Wood Chemistry and Polymer Science, University Helsinki (1974); Honorary Member, Wood and Polymer Chemists Assoc. of Finland (1974); Honorary Doctor, Technical University of Helsinki (1978); Anselme Payen Medal and Prize, Cellulose Division, American Chemical Society (1979); Fellow of the Technical Association of the Pulp and Paper Industry of US (1981); Member of the Finnish Academy of Science and Technology (1981); Expert Consultant, Jute Research Institute, Dhaka, Bangladesh (three visits; 1984-1985); Visiting Professor, Nanjing Forestry University, Nanjing China (1985); and, finally, the prestigious Galolin Gold Medal for Science of Finland (See Kemia-Kemi Number 5, 1989).

Here are comments (necessarily abbreviated) of a few of Professor Sarkanen's many friends and colleagues:

Graham Allan (UW): "(He) brought order out of the literature of lignin". Bjorn Hjurtford (UW): "A remarkable number of his students went into academic work". Charles Anderson (Pacific Lutheran University, Tacoma, WA): "Remembering our last work together, I have marveled at his thoughtful and considerate watchfulness over students and colleagues". Norman Lewis (Washington State University): "Many people owe their careers to him".

David Goring (Montreal and Toronto): "-- very much an intellectual force and leader". Henry Bolker (Montreal): "We had his top-quality advice in helping us get a four year Canadian government 'excellence' grant of \$14.6 million for research".

Tore Timell (Syracuse): "--outstanding in scientific work -- completely honest". Hou Min Chang (NC State): "-- the most inspiring teacher I ever had". Joseph Gratzl (NC State): "We were together many times in the sauna -- then much beer -- but the talk on research never stopped". Wolfgang Glasser (VPISU): "always critical but sent you away with a new view".

Robert Eckert (Weyerhaeuser): "-- as our consultant, he brought; firstly -- his caution and yet his fascination by the sense and joy of discovery; and secondly -- nothing got by him -- an independent thinker".

Johan J. Lindberg (Helsinki): "-- the famous lignin book, the classic in its field". Joseph Gierer (Stockholm): "-- two days before Christmas, I received Kyosti's card on which he had written a new proposal for the mechanism of chlorine dioxide oxidation of lignins". Horst Nimz (Hamburg): "-- in Heidelberg,

Freudenberg was a great admirer and sent a kraft of his biosynthesis book with Neish for comment". Dominique Lachanel (Grenoble): "I owe him very much from the year I spent at UW".

Junzo Nakano (Tokyo): "-- his research achievements are outstanding". Adrian Wallis (CSIRO, Melbourne): "-- a most stimulating person".

A few days after Kyosti died, I visited his office. Here, still on the blackboard, were his writings, "pH --- 140 C --- Na₂CO₃ -- 4-6 hours--", remaining from a few days earlier when we discussed (via interpreter) the new Russian pulsation pulping process with Dr. Ivanov, Director of the Pulp and Paper Research Laboratory in St. Petersburg. Kyosti was scheduled to go to Petersburg in 1991 as Visiting Professor.

He was looking forward to part-time retirement so that he would have time to write to bring the BIBLE up to date.

But it will not come to pass. Our friend is gone. Our colleague's voice will no longer be heard. We are missing him - and he is being missed throughout the world.
