

Per Borje Wahlstrom receives TAPPI's 1992 Gunnar Nicholson Gold Medal

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Perhaps the truest measure of an invention's value is how well it's taken for granted. If Per Borje Wahlstrom stepped back to observe papermaking without his contributions, he might see some 40 years of advances trimmed from the technology. From the headbox, to pressing and drying, to calendering, Wahlstrom's influence is evident. The Wahlstrom Theory of Pressing was the springboard to such products as the UNI-press, the shoe press, transversal flow presses and modern felt designs. Other areas of influence include: condensate removal systems, syphons and calender barring.

Wahlstrom was born in 1926, in Sweden, where papermaking was one of the country's major industries. His father worked for Stora, one of the largest paper companies in Sweden, and was a primary influence on his son.

Always do your best. Always look for the truth. Two imperatives that his father instilled in him are as much a part of Wahlstrom today as they were when he was a boy.

His father also believed that an education was the best thing he could give his son. So after completing his primary schooling and working summers at Stora, Wahlstrom attended the Royal Institute of Technology in Stockholm. After receiving an M.Sc. degree in chemical engineering in 1950, he spent a year in the Swedish Navy.

He worked for the Forest Products Research Laboratories (now STFI) in 1951, where he focused on research in pulping and bleaching. After joining Billeruds AB as control superintendent and technical director of their pulp and paper mill in 1956, his desire to see the world prompted him to leave Sweden for North America where he took a job in Quebec City, PQ, with Anglo Paper Products.

This transition in 1956 was, according to Wahlstrom, "a very key happening" in his life, for at Anglo, he became research associate to Jasper Mardon and began a relationship that has spanned more than 35 years. For Wahlstrom, Mardon has been a mentor, a partner, the best man at his wedding, and a valued friend.

Of Wahlstrom, Mardon says, "He did a piece of work that has influenced the course of papermaking ever since. There aren't many people who can make that claim."

That piece of work was a study that he conducted on pressing and drying while working under Mardon at Anglo.

"It was very unusual for any industrial research organization to allow people to run programs of this kind," says Wahlstrom. "These were things that were not short-term results for improving pressing results on their machines. One



could have a much shorter study to do that, but it was also intended to increase our knowledge about this. So I was very lucky to get this opportunity."

After a year of research and generating a stack of reports a meter deep, his research came to fruition through a paper he completed in 1960 entitled, "A Long Term Study of Water Removal and Moisture Distribution on a Newsprint Machine Press Section."

That year, he returned to Sweden to take a job with Korsnas AB in Gavle. Before leaving Canada, Wahlstrom promised to give a paper at the annual CPPA convention in January 1960.

At the time, Wahlstrom learned that KMW, a pulp and paper machinery manufacturer in Karlstad, was planning to build a research laboratory and was searching for a director. With encouragement from his peers, Wahlstrom applied and was hired. Support for his work began with the lab's construction and procurement of the most modern research equipment, but was especially underscored during a visit Wahlstrom made to the office of then-KMW President Bo Rathsmann shortly after his arrival in September of 1959. When he asked Rathsmann if he could go to Canada to give his paper in January, Rathsmann told him that giving his paper would be the best thing Wahlstrom could do for the company.

His presentation of "A Long Term Study of Water Re-

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Per Borje Wahlstrom at TAPPI's annual meeting in 1970 (left), and teaching in the 1980s.



moval and Moisture Distribution on a Newsprint Machine Press Section" at CPPA's annual meeting in 1960 earned Wahlstrom the Weldon Gold Medal for what is now the Wahlstrom Theory of Pressing. It's no mystery why Wahlstrom views Rathsmann as a third person who greatly influenced his life.

Wahlstrom spent six years at KMW, running the R&D facility that he helped to build, and supervising a staff of 60. He refined his pressing theory, discovering that pressing is a flow phenomenon affected by pressure, time, and temperature. This realization led to KMW's development of the first shoe press for wall board.

Wahlstrom also realized the interrelationship of all components of the paper machine, and guided experimental research into other new products for KMW. Based on Jasper Mardon's original concept of the one-sided inlet distributor, KMW developed a headbox using a thick hole plate turning the flow 90°, preventing lump formation and ensuring even distribution. Wet suction boxes increased a fourdrinier's drainage capacity, influenced the development of new tables, and improved sheet consistency and formation. The UNI press, and double felting, developed under Wahlstrom at KMW are now industry standards.

When Wahlstrom joined KMW, he also pursued an idea that came to him that sheet formation around a roll was the best way to build twin wire formers. When Webster was issued patents for its work on twin wire formers, KMW bought those patents. KMW's Periformer for tissue and Papriformer for flat sheets were developed from Wahlstrom's original ideas. KMW's roll formers for tissue are now standard technology.

In 1965, Wahlstrom became vice president and manager of A. Johnson & Co., Inc.'s, pulp and paper machinery division in Bala Cynwyd, PA. Since 1972, he has been a consultant to the pulp and paper industry.

What enables Wahlstrom to contribute so much to the industry? "The way he works exemplifies how people should work," says Mardon. "Wahlstrom planned his work out very

carefully. He spent months planning it, and he used the best equipment available. He also made sure that everybody in the mill in which he was working knew what he was doing. He got all the operators on his side.

"He reported his work meticulously. His work on pressing was an absolute model on the way one should do these things. It wasn't accidental. It was all carefully planned out. If you compare his final paper with the plan, you'll see that the paper is a mirror image of the plan, slightly different because of the alterations we made as we went along, but as an example of a piece of work meticulously planned and then carried out, it's superb."

Mardon still uses Wahlstrom's original plan, his 10 interim reports, and his final paper when he teaches students, so that they can see how it all links together.

Wahlstrom's affiliation with professional associations parallels his professional growth. A TAPPI member since 1956, he became a TAPPI Fellow in 1973. He also received the TAPPI Engineering Division Award in 1982 for outstanding contributions to pulping and papermaking technology, particularly in the area of water removal on the paper machine.

He is also a member of the Canadian Pulp and Paper Association, the Swedish Pulp and Paper Engineers Association, and the International Association of Scientific Paper Makers. Considered by many to be the leading expert on paper pressing, he has lectured at seminars for TAPPI and the Swedish Forest Industries Press Seminar, and has written more than 40 speeches and papers.

"The pulp and paper industry is a fantastic place to work," says Wahlstrom, but he points to a disturbing trend: "At the moment, people don't allow their employees to publish. I think that's not very beneficial to the industry or to the employees." If publishing had been prohibited when he was growing up, says Wahlstrom, he believes he wouldn't be where he is today.

He is also very concerned about the industry's tendency to look at short-term goals. "If that had been the case when I was growing up," says Wahlstrom, "I wouldn't have any medal for a new theory of pressing." □