Six New Inductees Named to Paper Industry International Hall of Fame

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Six New Inductees Named to Paper Industry International Hall of Fame

Thomas Gardner, Niilo Heikki Hakkarainen, Charles Klass, Otto Kress, Irwin Pearl and Juhani Strömberg chosen as Paper Hall’s 22nd Induction Class

Appleton, Wisconsin (May 26, 2016) – The Paper Industry International Hall of Fame’s membership roster will expand to 135 on October 6th with the induction of six more paper industry notables who have been chosen as the 22nd induction class.

Thomas Gardner, Niilo Heikki Hakkarainen, Charles Klass, Otto Kress, Irwin Pearl and Juhani Strömberg will join 129 previous members of the Paper Hall of Fame during induction ceremonies at the Radisson Paper Valley Hotel in Appleton, Wisconsin.

The Paper Industry International Hall of Fame recognizes individuals who, through their inventions, initiative and efforts, have built or improved paper and allied industries worldwide.

Each of the six inductees is being recognized in one or more categories, including Academic, Economics, Entrepreneur, Leadership, Inventor/Innovator, Service and Research & Development. This year’s inductees are from Finland and the United States.

The 2016 inductees are (more detailed information follows):

- **Thomas Gardner** conceived of and developed a new process for drying paper using air. His inventions that resulted from this concept have been applied to a number of different aspects of papermaking and paper processing. Gardner applied his air drying knowledge to improving the dryers on Yankee tissue machines, developing systems for drying heat set inks, and inventing the “Floater” dryer that allowed drying heat set inks on both sides of the web at up to four times previous speeds. He also developed the Pocket Ventilating system, and the Gardner-Blow-Through Steam Control System. In 1967 he founded Gardner Systems where he served as President and CEO until his retirement in 2011. *Appleton, Wisconsin USA*

- **Niilo Heikki Hakkarainen (deceased)** Niilo Heikki Hakkarainen took over as President and CEO of United Paper Mills at a time when it was suffering from severe financial problems and needed an entirely new strategy. He converted a centrally managed company into a group of profit centers that were compelled to compete not only on the market but also with each other. The strategy was a success. When UPM started investing again, it was in the area of TMP based papers (newsprint and both coated and
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uncoated magazine grade papers) using path breaking new technology. Hakkarainen trusted his young engineers and gave them his full support. Developments during this time included pressure sensitive label laminates, air laid papers, composite materials with paper, polymers and aluminum foil and an aseptic liquid packaging system. At the end of Hakkarainen’s era in 1991 UPM was Finland’s strongest pulp and paper company and also one of the world’s largest. Helsinki, Finland

- **Charles Klass** Charles (Chuck) Klass has a long history of service to the paper industry from the 1970s. However, beginning in 1986 Chuck’s made his mark on the industry as a consultant to numerous companies involved in coating various paper grades. His contributions led to the commercialization of the metered size press, coating of deinked post-consumer recycled waste papers, the addition of fluorocarbons for grease resistance, the development of Crayola Wonder® paper, the development of rod coaters for Kohler Coating, the commercialization of nanoparticle biolatex® binders for Ecosynthetix, and the development of Colorlok technology for Hewlett Packard for their inkjet papers. Madeira Beach, Florida USA

- **Otto Kress** (deceased) When the Institute of Paper Chemistry opened in 1929, not only was Dr. Otto Kress responsible for the academic direction of the organization, but the many hats he’s worn within IPC over nearly nine decades have been critical in establishing the success of the organization from the beginning. His vision, persistence and drive have withstood the test of time. For the first eighteen years of IPC’s existence, Dr. Kress served as the inaugural Technical Director, setting the tone for cutting-edge graduate programs for the industry, conducting invaluable research and maintaining a complete library on the subject. In addition to this role, over the course of almost ninety years, he has served in every capacity needed or imaginable, from janitor to secretary, lab technician and teacher. With his help, the Institute of Paper Chemistry became the first graduate program in pulp and paper sciences in the United States, and he was the first practitioner and likely creator of an IPC academic program to produce “scientific generalists” who understood and could apply a wide range of scientific disciplines to paper manufacturing. He navigated the treacherous conditions of the Great Depression and the economic impact of World War II, and was still able to energize and bring the American paper industry to the forefront of the international scene. Appleton, Wisconsin USA

- **Irwin Pearl** (deceased) Dr. Irwin Pearl strengthened the paper industry and many mills with his skills as a researcher in organic and analytical chemistry. He left a vast legacy of knowledge and service. Dr. Pearl was a pioneer in creating more value from wood by finding uses for the lignin and other materials that are normally just burned after being separated from wood fibers. Starting in 1941, he was one of the first in the world to recognize and explore the hidden value of lignin in black liquor. This work not only laid a foundation for the creation of new industries, but it also helped save lives as one of the products he helped extract from lignin was used to treat thousands of people with a deadly infection. Dr. Pearl was a strong believer in the use of waste materials for value-added products, and he saw lignin derivatives as a rich opportunity that could rival petroleum and coal tar as a source of synthetic materials. He showed that with further chemical treatment, the lignin in black liquor from kraft pulping could yield useful
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lignosulfonates similar to those coming from sulfite pulping. The work he launched was ahead of its time, and today is known as biorefining. Appleton, Wisconsin USA

- **Juhani Strömberg** Juhani Strömberg conceived of and spearheaded water-based label stock laminates, which development revolutionized the global market. Label stock is important for the paper industry because the final product needs both face papers and release papers. In 1969, Strömberg was named product development manager in Raf. Haarla, later Raflatac, a division of UPM (United Paper Mills). He soon realized that water-based label stock laminates would have great opportunities because of qualitative and environmental reasons, although market share was only 3% primarily because of cost because they were manufactured off-line. Strömberg’s vision was to produce them online. He also led the development of a superior glassine released paper, and influenced the development of better quality face papers. The developments revolutionized the global market, with market share of 65% by the end of the 1980s. Helsinki, Finland

The 22nd annual ceremony will begin with a reception at 5:30 p.m. on Thursday, October 6, 2016 followed by dinner at 6:30 and the ceremony at 8 p.m. Attendees also will have the opportunity to witness the hanging of the commemorative plaques at the Paper Industry International Hall of Fame within the Paper Discovery Center located at 425 W. Water Street, along the Fox River in Appleton, in the historic Atlas Paper Mill.

Reservations and sponsorships for the induction event can be made through the Paper Industry International Hall of Fame office at 920-380-7491.

**2016 Inductees – Paper Industry International Hall of Fame**

**Thomas Gardner (retired)**
Inventor/Innovator
President
Gardner Systems Corp.
Appleton, Wisconsin USA

Thomas Gardner is an example of a person who built on his practical experience to conceive of and develop a new process for drying using air. The inventions that resulted from this concept have been applied to a number of different aspects of papermaking and paper processing. He continued to innovate, extending his concepts to the handling of steam in various aspects of papermaking.

Thomas was born in Green Bay and grew up in the Appleton area. Following graduation from Oregon State University with a BSc in Mechanical Engineering (1949), he took a job with Abitibi Power and Paper in Ontario, Canada as a design engineer. In 1953 he moved to Marathon Corporation (American Can) in Neenah, Wisconsin. This is where he began to develop his ideas on using air for drying. In 1960 he published “A Theory of Drying with Air” in TAPPI (Vol. 43, No. 9, page 796). This paper actually followed the successful installation of a coating machine with a Gardner dryer in 1958.
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Thomas then got involved in developing air dryers for a variety of applications. These included off machine blade coaters as well as on machine coaters. Thomas applied his air drying knowledge to improving the dryers on Yankee tissue machines, developing systems for drying heat set inks, and inventing the “Floater” dryer that allowed drying heat set inks on both sides of the web at up to four times previous speeds. He also developed the Pocket Ventilating system that allowed for more uniform drying across the web. Previously, in order to dry the center of the web, it was required to overdry the edges. Thomas then developed the Gardner-Blow-Through Steam Control System for supplying steam and draining condensate from existing paper machine dryers. Over 150 of these systems have been installed on paper machines around the world.

In 1967, Thomas founded Gardner Systems Corporation in Neenah, Wisconsin (offices now in Appleton) where he served as President and CEO until his retirement in 2011. In addition to his design and engineering work with Gardner Systems, he has served as a consultant to many pulp and paper manufacturers. He was a member of TAPPI, CPPA, PIMA, GATF and IASPM.

Niilo Heikki Hakkarainen (deceased)  Economics / Inventor/Innovator / Leadership
CEO
United Paper Mills, Ltd.
Helsinki, Finland

Niilo Hakkarainen was a Finnish industrialist, President and CEO of United Paper Mills Plc with a diploma engineer (MSc) degree from the Helsinki Technical University in 1953.

Hakkarainen began his career in Kemi Oy's pulp mill advancing there from production engineer to President. In 1970 he was invited to follow Mr. Juuso Walden (2012 PIIHF Inductee) as President and CEO of United Paper Mills. During Walden's time the company had gone through an ambitious post war growth program towards the end of which it suffered from severe financial problems and needed an entirely new strategy.

A newcomer at the helm Hakkarainen managed to turn the big ship around. He converted the earlier centrally managed company into a group of profit centers that he compelled to compete not only on the market but also with each other with regard to profitability. The system was extremely demanding and every business had to justify its existence. A profit center had the right to invest half of its profit the way it wanted but in loss years the losses caused a cumulative debt with a high punishment interest.

The strategy was a success. After some harsh years UPM started investing again. The main investments were in the area of TMP based papers, i.e. newsprint and both coated and uncoated magazine grades. The very special feature of these investments was that they were based on path breaking new technology. The TMP process came from UPM's Engineering Division Jylhävaara, the talc from UPM's own mine and much of the twin wire paper machine development was done together with Valmet. Hakkarainen trusted his young engineers and gave them his full support also in cases when old and experienced paper makers and printers in the beginning warned him.
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All in all UPM built eight world class paper machines, three of them in green field locations in the UK and France. Seven machines produced printing grades and one was world's largest release base paper line. These production lines were built by basically one and the same UPM team together with Jaakko Pöyry and the suppliers. They became famous for starting ahead of schedule and within the budget.

Other developments that deserve mentioning were pressure sensitive label laminates, air laid papers, composite materials with paper, polymers and aluminum foil and an aseptic liquid packaging system. Of these the label laminates grew to a world class business that justified even the building of the afore mentioned release paper line. This is also an example of Hakkarainen's support to innovative young people. (See Strömberg).

At the end of Hakkarainen's era in 1991 UPM was not only Finland's strongest pulp and paper company but also one of the world's largest. Unlike many of the competitors Hakkarainen refused to buy market share by taking over old capacity. He trusted in the skills of UPM and its staff. This resulted also in UPM becoming the favorite employer among talented young people.

Niilo Hakkarainen was a controversial person. He was extremely demanding and hardly had any personal friends among the employees. At the same time he was respected. People understood what it takes to turn the ship and make it a world class giant.

Charles Klass  Service
President
Klass Associates
Madeira Beach, Florida USA

Charles (Chuck) Klass has a long history of service to the paper industry from the 1970s. However, beginning in 1986 Chuck’s made his mark on the industry as a consultant to numerous companies involved in coating various paper grades. His contributions led to the commercialization of the metered size press, coating of deinked post-consumer recycled waste papers, the addition of fluorocarbons for grease resistance, the development of Crayola Wonder® paper, the development of rod coaters for Kohler Coating, the commercialization of nanoparticle biolatex® binders for Ecosynthetix, and the development of Colorlok technology for Hewlett Packard for their inkjet papers.

Mr. Klass during his career also led the project to secure a pilot coater for the Paper Technology department at Western Michigan University.

Over the years Chuck has receive numerous professional honors and awards including the TAPPI Gunnar Nicholson Gold Medal Award. In addition, he now serves on the board of four corporations and is an adjunct professor at Western Michigan University.
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Otto Kress *(deceased)*  
*Technical Director, Professor*  
*Institute of Paper Chemistry*  
*Appleton, Wisconsin USA*

When the Institute of Paper Chemistry opened in 1929, not only was Dr. Otto Kress responsible for the academic direction of the organization, but the many hats he wore within IPC over nearly nine decades were critical in establishing the success of the organization from the beginning. His vision, persistence and drive have withstood the test of time. For the first eighteen years of IPC’s existence, Dr. Kress served as the inaugural Technical Director, setting the tone for cutting-edge graduate programs for the industry, conducting invaluable research and maintaining a complete library on the subject. In addition to this role, over the course of almost ninety years, he has served in every capacity needed or imaginable, from janitor to secretary, lab technician and teacher. These varied contributions have made an indelible imprint on the reputation of IPC as a highly competitive and important part of the American paper industry.

Although he touts many accomplishments, including a catalogue of published work, 38 patents filed under his name and various other innovations in the pulp and paper industry, it is his impact on the people he has touched that is most notable about Dr. Kress. What the 229 students he’s mentored, the hundreds he has educated, the nearly two thousand graduate students who have been financially supported by the Dr. Otto and Florence Kress endowment and the faculty members he’s worked alongside will recall the most about him is his brilliant insight, passion for the paper industry and the gift of inspiration that he’s freely given. Dr. Kress’s innumerable contributions, tangible and intangible, have surpassed the needs of the paper industry and produced students who will continue to bring innovation, research and best practices to the field for many years to come.

At a time when research budgets are constrained and the industry is evolving, the insight and work of Dr. Otto Kress lives on and continues to make industry-changing contributions. With his help, the Institute of Paper Chemistry became the first graduate program in pulp and paper sciences in the United States, and he was the first practitioner and likely creator of an IPC academic program to produce “scientific generalists” who understood and could apply a wide range of scientific disciplines to paper manufacturing. He navigated the treacherous conditions of the Great Depression and the economic impact of World War II, and was still able to energize and bring the American paper industry to the forefront of the international scene. The Institute of Paper Chemistry, now the Renewable Bioproducts Institute at Georgia Tech, and the pulp and paper industry at large have been poised for continued growth and positively impacted by his tireless dedication over a ninety-year span.

Dr. Kress held a Bachelor’s of Science and PhD in Chemistry from Columbia University and an Honorary PhD from Lawrence College, where the Kress House memorial dormitory has been named. His name also graces the Otto and Florence Kress Auditorium at Georgia Tech’s Paper Tricentennial Building. He is a Gunnar Nicholson Award (TAPPI Fellow) recipient. His resume includes seventeen years of industry experience and leadership, prior to his decades of service with the Institute of Paper Chemistry. His impressive list of credentials includes mill and laboratory work focused on dyestuffs and other chemical processes. Today, 43 graduate students...
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study with fellowships at Georgia Tech supported by his endowment. These fellows will go on to
conduct research that contributes to the accumulated knowledge of the industry. And still, Dr.
Otto Kress’ legacy in the pulp and paper industry continues.

Irwin Pearl (deceased) Academic / Inventor/Innovator / R & D
Senior Research Associate, Professor
Appleton, Wisconsin USA

Dr. Irwin A. Pearl not only strengthened the paper industry and many mills with his skills as a
researcher in organic and analytical chemistry, but his work helped to save numerous lives from
disease. He left a vast legacy of knowledge and service.

Dr. Pearl was a pioneer in creating more value from wood by finding uses for the lignin and
other materials that are normally just burned after being separated from wood fibers. Starting in
1941, he was one of the first in the world to recognize and explore the hidden value of lignin in
black liquor. This work not only laid a foundation for the creation of new industries, but it also
helped save lives as one of the products he helped extract from lignin was used to treat thousands
of people with a deadly infection.

Born in 1913 in Seattle, Washington, Irwin would obtain three degrees, including a Ph.D., at the
University of Washington. After a decade as a research associate at the University of
Washington, he would join the Institute of Paper Chemistry in 1941, where he began his pursuit
of lignin chemistry. In 1955 he was appointed leader of the Lignin Group. His duties were
further expanded in 1971 as he helped numerous mills conduct testing to ensure compliance with
new environmental regulations.

Dr. Pearl was a strong believer in the use of waste materials for value-added products, and he
saw lignin derivatives as a rich opportunity that could rival petroleum and coal tar as a source of
synthetic materials. He showed that with further chemical treatment, the lignin in black liquor
from kraft pulping could yield useful lignosulfonates similar to those coming from sulfite
pulping. The work he launched was ahead of its time, and today is known as biorefining.

His many contributions include isolation of vanillin and related products from lignin, along with
numerous esters, amides, ethers, and other compounds that could be used for slime control,
treatment of fungal infections, preservatives, etc. Thanks to his work in extracting products from
lignin, 1.25 million tons per year of lignin waste were prevented from entering streams and
rivers.

In 1952, working with Robert Cohen, Pearl produced ethyl vanillate from lignin which provided
an inexpensive source for a compound which was needed to treat several serious fungal
infections including actinomycosis, or lumpy jaw; histoplasmosis; blastomycosis; and
coccidioidomycosis, or “Valley fever.” When these fungal infections were able to get past the
immune system of a patient, it was usually fatal and there were no effective medications prior to
ethyl vanillate. Ethyl vanillate made from by-products of wood pulp were used to treat patients in
North America and Europe, as reported in The Science News-Letter (Vol. 65, No. 23, June 5,
1954, p. 355, and Vol. 59, No. 23, June 9, 1951, pp. 357-358) and The British Medical Journal
(Vol. 2, No. 4841, Oct. 17, 1953, pp. 857-860). Today other anti-fungal drugs are more
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commonly used, but the production of ethyl vanillate from wood pulp filled a critical need in that day when other treatments were not yet discovered. Turning a study of lignin from black liquor into life-saving medication is an important example of the benefits that can come from research in our industry.

Dr. Pearl had over 100 publications and authored the book, The Chemistry of Lignin (New York: Marcel Dekker, 1967). He was an active member of the American Chemical Society for nearly 80 years. Dr. Pearl was a Fellow of the New York Academy of Sciences. He and his wife Lillian had two children. Dr. Pearl passed away in Delaware at the age of 100.

Juhani Stromberg
Entrepreneur / Leadership / Technology

Juhani Strömberg conceived of and spearheaded water-based label stock laminates, which development revolutionized the global market. Label stock is important for the paper industry because the final product needs both face papers and release papers. In 1969, Strömberg was named product development manager in Raf. Haarla, later Raflatac, a division of UPM (United Paper Mills). He soon realized that water-based label stock laminates would have great opportunities because of qualitative and environmental reasons, although market share was only 3% primarily because of cost because they were manufactured off-line. Strömberg’s vision was to produce them on-line.

His team mastered a three-fold innovation: solid water-based adhesives, solvent free silicones and advanced on-line production. The ability to do this at high speeds took 10 years of development, and Strömberg’s vision and charismatic leadership kept the team together and maintained corporate support. He also, as a chemist, led the development of a superior glassine released paper, and influenced the development of better quality face papers. The developments revolutionized the global market, with market share of 65% by the end of the 1980s. As an entrepreneur, Strömberg has a certain type of personality that one colleague described as follows: “A person with perseverance works hard, stays at it a long time and finally fails. One who is pigheaded stays at it a long time, fails and eventually succeeds.” This is one example in history of how such leadership can produce major changes.

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