

## Personalities in Polymer Science

### Honoring Professor Otto Vogl on his 75th Birthday



Otto Vogl

Otto Vogl is a polymer scientist of high international acclaim. He was born and educated in Central Europe, but has had his distinguished career in academic and industrial research in the United States. Throughout his career, which started in basic organic chemistry but, fortunately for us, evolved into polymer chemistry, he has been very active in promoting international relations and worldwide cooperation among scientific communities around the world in the field of polymer science.

Otto Vogl was born in Traiskirchen, Austria (a suburb of Vienna) on November 6, 1927. His father, Franz Vogl, was from a family of winegrowers and local musicians. His mother, Leopoldine Scholz, was from a family of country doctors, farmers, and small merchants.

Otto went to elementary school in his hometown and then to middle and high school in Baden, the district capital. After graduating from high school in 1945, Otto entered the University of Vienna, where he studied chemistry. In 1947, he began the work on his thesis, working on steroids and alkaloids with Professor Friederich Galinovsky, and he was awarded his Ph.D. in 1950 at the age of 22. After a few years as an instructor at the University of Vienna,

Otto Vogl left his home country for the United States, where he worked as a postdoctoral fellow with Professor C. S. Rodestvedt at the University of Michigan and then at Princeton University as a research associate with Professor E. C. Taylor. During this period, his research interests evolved from steroids and alkaloids to heterocyclic compounds, especially purines and pyrimidines.

In 1956, Otto Vogl joined DuPont, where research in polymer chemistry was starting to expand rapidly. During a 14-year career at DuPont in both the Plastics and Central Research Departments, his research interest shifted from organic to polymer chemistry and his future life-long interest in aldehyde polymerization began.

In 1970, Dr. Vogl was invited to join the newly created Polymer Science Program at the University of Massachusetts in Amherst, where he became one of the four professors in this program. Here he was responsible for the organic chemistry part of polymer science. During this tenure at the University of Massachusetts, Dr. Vogl served as Graduate Program Director, was involved in bringing the Materials Research Laboratory to the department, played a major role in the creation of the cooperative program between industry and the university, the Center of the University of Massachusetts-Industry Research on Polymers (CUMIRP), and became its first director.

In 1983, Professor Vogl moved to Brooklyn, NY to become the Herman F. Mark Professor of Polymer Science at the Polytechnic University (formerly "Brooklyn Poly"). This newly created chair, and the first endowed chair in Polymer Science in the United States, was named for the late Herman F. Mark, who founded the Polymer Research Institute at the Polytechnic University in the 1940s and who is acknowledged as the "Father of Polymer Science" in the United States. In 1996, Otto Vogl retired, became an Emeritus Professor at the Polytechnic University, and assumed his Emeritus position at the Department of Polymer Science and Engi-

neering at the University of Massachusetts in Amherst.

Otto Vogl's research interests can be summarized as follows: polymerization of aldehydes, higher aliphatic aldehydes, and helical polymers, optically active polymers, stereoregular oligomers of addition polymers, general concept of stereospecific polymerization, optical properties of solids, the single polymer helix, chiral crystallization and chiral nucleation, functional polymers, polymerizable and polymeric stabilizers, medically active polymers, macromolecular architecture, spacer effects in polymeric structures, structure/property relationship of unusual polymers and polymer blends, oriental lacquers, and most recently isotopically pure, uniform polymers: the final step to true uniformity in macromolecules.

His research accomplishments include the discovery of the polymerization of higher aldehydes, cryotachonic polymerization, helical polymers as the structure of the most important stereoregular polymers, the single polymer helix, polymeric and polymer-bound (UV) stabilizers, and chiral crystallization of inorganic salts and chiral polymers.

During his entire scientific career, Otto was not committed to one subject in polymer science. He used his broad knowledge in polymer science and engineering to make significant and fundamental contributions to many fields. His main principle in research was that it be fundamental and inventive, i.e., that a subject had not been investigated or even recognized or that it had been claimed that it could not be done. He was responsible for coining such names as *Functional Polymers* and *Macromolecular Architecture*.

During his academic career, Otto Vogl supervised about 100 students and postdoctoral Research Associates from all over the world, he published about 450 scientific papers, wrote an additional 150 science-related articles, and is the holder of about 50 U.S. and foreign patents. He was involved in publishing, serving on 15 editorial boards and is the Editor-in-Chief

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of *Progress in Polymer Science* and the American Editor of *Monatshefte*. Otto Vogl has been a major supporter, advisor, and contributor to *Polymer News*. He has written guest editorials, feature articles, and this "Personalities in Polymer Science" column. His series of conference and centers of polymer research reports have not only covered the technical details but, through his use of interesting pictures, have introduced our readers to the local histories and cultures. In addition, he has recruited many columnists and advisory board members for *Polymer News*.

Otto Vogl has received over 25 medals and awards, including the Chemical Pioneer Award of AICh, the ACS Award in Applied Polymer Chemistry, and the ACS Herman F. Mark Award. His numerous medals include the *Exner* Medal of the Austrian Trade Association, the *Ehrenkreuz* for Arts and Sciences of the Republic of Austria, and the Herman F. Mark Medal of the Austrian Institute for Chemistry and Technology.

He has received four honorary doctoral degrees from the University of Jena, Germany, the Polytechnic University of Iasi, Romania, the University of Osaka in Japan, the Slovak Academy of Sciences, Bratislava. He also has three honorary memberships in chemical societies, including the Austrian Chemical Society, and is a Foreign Member of the Austrian Academy of Sciences and the prestigious Royal Swedish Society of Sciences.

Otto Vogl has not only been an outstanding scientist, but he has also served the scientific community conscientiously and with dedication. Only a few leading positions that Otto Vogl held during his life should be mentioned here. He was the Chairman of the Division of Polymer Chemistry of the ACS (in 1974), the Chairman of the local Connecticut Valley Section, the Chairman of the Committee for Macromolecules of the U.S. National Academy of Sciences, and the Chairman of the Gordon Conference of Polymers.

Two aspects of his activities have made him unique in the scientific polymer com-

munity: his international activity and his interaction with the polymer industry.

After his tenure as the chairman of the ACS Division of Polymer Chemistry, he created the international committee of the Polymer Division to provide a mechanism for the Division to interact internationally in polymer chemistry. He became chairman of the international committee and served for 14 years. During this time, he made agreements with the Society of Polymer Science, Japan, the French polymer group, the Italian polymer group, and the polymer division of the German Chemical Society. Not all of these initiatives flourished, but the Japanese interaction, which started in 1974, became a successful cooperation that lasted for many years and resulted in two joint meetings, in Palm Springs and Kyoto. This bilateral interaction was the seed for the creation of the Pacific Polymer Federation (PPF), of which he was the first president, and which is now an organization of over 17 member organizations with an estimated membership of 60,000 scientists.

Otto Vogl was the first industrial professor at Kyoto University in 1968 under the sponsorship of the Head of the Department of Synthetic Chemistry, Professor Furukawa. Otto Vogl has continued his interactions in Japan. He maintained his close cooperation with the Kyoto and Osaka polymer schools and was a frequent visitor to Japan. In 1980, he was a visiting professor, supported by the Society of the Promotion of Science, for one semester. Recently, in 1996, he received the unique and prestigious Monbushu professorship, an appointment by the Ministry of Science, Research and Sports, and he was located at the Kyoto Institute of Technology.

Otto Vogl's interaction with and commitment to Osaka University has lasted since his first appointment as an adjunct professor in 1968. His visits, teaching at the university, and cooperation in scientific research were recognized with an honorary degree, the second such degree to be granted in the history of Osaka University. In his interaction with Japanese uni-

versities, Vogl was responsible for agreements of cooperation between the following institutions: Kyoto Institute of Technology and Polytechnic University of New York, Osaka University and the University of Massachusetts, and now Osaka University and the Royal Institute of Technology of Stockholm, Sweden.

He was and is also committed to polymer science and teaching in Sweden. Since 1971, he has been a frequent visitor to Sweden and has taught 20-hour short courses every few years at the Royal Institute of Technology. He was a member of the oversight committee of the Swedish National Science Foundation on Organic and Biochemical Synthesis and the chairman of a similar committee on Polymer Science in 1988.

Numerous were his visits to places that were not always easily accessible but where attention was desirable and needed, most prominently the countries of Eastern Europe: Poland, Czechoslovakia, Hungary, and Romania. He also paid visits to China, where he spent one month almost 20 years ago, invited by the Ministry of Education, setting up a polymer program at the University of Wuhan and giving a 20-hour short course at Wuhan University and also at East China Normal University, now the Textile University of China, in Shanghai.

Vogl's contributions to technical and economic development in the polymer field, however, are not as well known. His background at DuPont gave him a substantial advantage in recognizing problems of industrial importance. He was first called to an important industrial position in 1976, when he was asked to reorganize the research activities at the Division of Plastic Materials of Montedison in Italy (a \$1.5 billion enterprise at that time). In his new position (as a director of the company), he successfully reorganized the research organization, and within six months, the supercatalysts to produce polypropylene highly efficiently were discovered, which made Montedison and its successor companies in the polypropylene business the

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dominant force in polypropylene production and business worldwide.

Some years later, Otto Vogl was asked to be the chairman of a Scientific Committee to advise the Vice President of Enichemica Research in Milan, Italy, Italo Trapasso, in streamlining the poly (vinyl chloride) business. For several years, Otto Vogl was also a member of three-man academic group that advised the Vice President of Research of Westinghouse Corporation on the electric and mechanical properties of materials. Otto Vogl was also, for five years, a member of the Supervisory Board of Chemie Linz GmbH. He was also the scientific advisor to the PCD, the Polyolefin Company of OeMV. He has also been, for the last ten years, a member of the International Supervisory Committee of the Doppler Foundation in Austria.

Vogl's interactions with U.S. industry were also demonstrated when he was the prime mover to establish CUMIRP, the Center of the University of Massachusetts Industrial Research on Polymers. Over the years, Otto Vogl has had an extensive consulting schedule that included Tennessee Eastman, Eastman Kodak, Dow Chemicals, Alcon, Shell, and Merck, but ultimately, and for the last two decades, he consulted for DuPont, where he had learned industrial research.

Otto Vogl is normally known as an outstanding and innovative scientist, educator, lecturer, international scientific politician, and statesman in polymer science. In actual fact, he is a renaissance man. He speaks, in addition to English, his native German and also French and Italian, and has some knowledge of Japanese, Hungarian, and Russian.

Vogl's interest in the arts stems from his early mentor, Ernst August Schneider, the Administrative Director of the Vienna State Opera after the second World War, who guided him through his early university years and instilled in him his love for the opera. Otto Vogl was instructed in the piano by the organist of his local church, which provided Otto with enough knowl-

edge to instruct his own two children in their first three years on the piano.

Vogl's interest in the art of painting, particularly of the "Old Masters," led him to involvement in the preservation and restoration of such paintings. His interest in polymeric and oligomeric UV stabilizers gave him insight into the protection of paintings against light. One student at Polytechnic University, in conjunction with the Metropolitan Museum of Art in New York, wrote his Master's thesis under Vogl's instruction. Later, under the auspices of the Pacific Polymer Federation, Vogl organized a Symposium on Polymer Science and the Arts, after which he became involved in his work on oriental lacquers.

In his early youth, Otto was also a devoted soccer player and played in the weekly games at the playing fields of the Chemical Institutes of the University of Vienna. He also played at the university championships representing the Chemical Institutes. Later, while at the University of Michigan, he played for the University of Michigan soccer team and served with distinction.

Otto Vogl is a devoted stamp collector. His Austrian and modern Japanese collections are of substantial completeness.

In 1955, Otto Vogl married Jane Cunningham, of Sag Harbor, NY. They have two children. Their son, Eric, is employed by the Exploration Company of Exxon Mobil. Eric has three children, Kyle, Derek, and Jennifer. Otto Vogl's daughter, Yvonne, is a partner of an investment firm in New York City. She also has three children, Justin, Nicole, and Farris Jane.

This article was prepared by **Gerald Kirshenbaum**, Editor, *Polymer News*, Summit, NJ, USA and **Helga Roder**, Managing Director of the Society of the Chemical Industry, Vienna, Austria and is based on prior articles by D. A. Tirrell, *Polymer News*, Vol. 17 (11), p. 343 (1992), B. Rånby, *Progress in Polymer Science*, Vol. 19 (6), p. vii (1994), and J. C. Salamone, *Polymer News*, Vol. 22 (10), p. 352 (1997).

