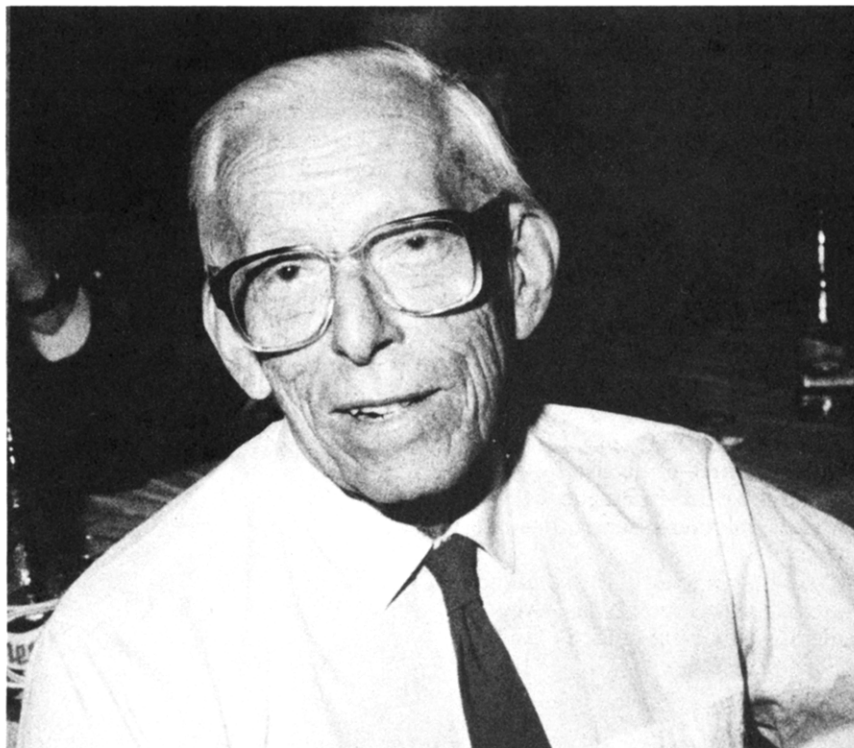


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Otto Wichterle

On October 27 Otto Wichterle, widely loved and admired not only as an outstanding scientist but also as a man who stood uncompromisingly for his beliefs under the pressure of a vicious dictatorial regime, will celebrate his eightieth birthday.

Wichterle, the son of a manufacturer of agricultural machines, grew up in Moravia, which is now the eastern part of the Czech Republic. He planned to study mechanical engineering at the Technical University in Prague, but a friend of the family painted such a dismal picture of conditions in the mechanical engineering department that young Wichterle changed his mind and enrolled in the chemistry curriculum. His university years fell into the period preceding the outbreak of World War II, and the tension of the time led to an extreme political polarization of both the faculty and the student body. This experience had a profound effect on Wichterle's later development, in that it made him conclude that a scientist cannot remain uninvolved in the political drama of his time.

After obtaining his doctorate, Wichterle was advised by Professor Votoček, a noted organic chemist, that the

chances for an academic appointment in chemistry were slim and that they might be better in the faculty of medicine. This induced Wichterle to enroll in 1935 in biology and anatomy courses—an experience which undoubtedly led to his interest in medical applications of synthetic polymers many years later.

In March 1939 Hitler's army occupied what was left of Czechoslovakia after the country had been dismembered as a result of the Munich agreement of the previous year. On November 11 all Czech Universities were closed, and a number of students were executed or deported to concentration camps. Fortunately, the large shoe manufacturing company Bat'a offered employment to qualified chemists in order to protect them from the occupying forces, and Wichterle was one of those sheltered in this manner. During his time with Bat'a, Wichterle discovered the catalyzed polymerization of caprolactam to Nylon 6, which was used after the war in the Czechoslovak fiber industry. Later, Wichterle and his collaborators also developed the anionic polymerization of bulk caprolactam leading to massive Nylon 6 products.

After the end of World War II Wichterle returned to academia and in 1946 submitted a proposal for the establishment of a chair in macromolecular chemistry. It took more than three years for the Ministry of Education to give its approval and to name Wichterle to this chair at the Prague Institute of Chemical Technology. However, he soon collided with the administration of the institute, which insisted that scientific concepts had to agree with the orthodoxies of Marxist-Leninist philosophy, and these frictions led in 1958 to his dismissal during a great "political cleansing" campaign. Fortunately, as a result of a most successful IUPAC Symposium on Macromolecules organized under Wichterle's leadership in Prague during the preceding year, the Czechoslovak Academy of Sciences decided to found an Institute of Macromolecular Chemistry and agreed to have Wichterle head it, since this would not expose students to his politically incorrect ideas.

Some time in 1952, Wichterle formulated the concept that contact with lightly cross-linked, water-swollen polymers should not irritate living tissues and should, therefore, find numerous applications in medicine. This led him to inspire his students and later his collaborators at the Macromolecular Institute to study intensively the physical chemistry of hydrogels. The work was particularly directed toward application to soft contact lenses. Although the polymer of hydroxyethyl methacrylate (HEMA) has desirable optical properties, the feasibility of manufacturing lenses of appropriate shape from a soft gel encountered general skepticism. Wichterle solved the problem in 1961 in a most ingenious way: He built in his home, from a children's erector set, a prototype machine in which HEMA was polymerized in rotating cups, so that the centrifugal force led to the desired curvature of the gel. This invention was the source of license fees which allowed the Macromolecular Institute in Prague to become the best equipped center of polymer research in eastern Europe.

In early 1968 a relatively liberal wing of the communist party assumed power, and the country was swept by enthusiasm for "socialism with a human face". In June

a manifesto of "two thousand words" was published, with Wichterle one of the signatories. It contained some modest proposals for the reform of the regime. This was taken as a pretext for the invasion of the country by the Soviet army on August 21. Signatories of the "two thousand words" were asked to recant. Wichterle refused and was, therefore, fired from the institute which had been his creation. He was forbidden for 8 years to leave the country and was harassed in various ways, and an effort was made to belittle his role in the soft lens development. Wichterle bore these tribulations with great humor. He never dissimulated his opinions and used to say that he played a role similar to that of jesters at the courts of medieval kings, who kept them to hear the truth. At a meeting in Bratislava in 1969 he delighted his audience by saying that "the pace of technical progress is so rapid that even the worst organization of society cannot quite stop an improvement in the standard of living".

Finally, in 1976, he received an invitation from Glen Seaborg, President of the American Chemical Society, to come to San Francisco for the acceptance of the "ACS Centennial Foreign Fellow" award. Although he was first forbidden to accept the invitation, the powers that be changed their mind when it became necessary to have Wichterle defend Czechoslovak soft lens patent rights in a San Francisco court.

After the "velvet revolution" of 1989, which put an end to the communist dictatorship, Wichterle was elected President of the Czechoslovak Academy of Sciences, a position he held until a few months ago. That was a belated recognition of a man who served his country well as a patriot and who had done much to gain worldwide respect for Czechoslovak science.

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