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# Centers of Polymer Science: Introduction

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# ***X. Centers of Polymer Research*** *(in 235 pages)*

*by*

***Otto Vogl***

*In Cooperation with Gerald S. Kirshenbaum, Editor of Polymer News*

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## **Introduction**

Macromolecules (polymers) have been with us for a long time. Our life depends on macromolecules, natural macromolecules: proteins, nucleic acids and polysaccharides. Elastomers and adhesives have been used for centuries. Over those years, almost 2 centuries, work that involves macromolecules was done in selected groups for specific purposes. The nature and fundamental structure of macromolecules were recognized only in the early 20<sup>th</sup> century.

As interest rose in macromolecular research, more scientific groups became committed to this research. In Europe, industry and some institutes became interested in macromolecules. Industry was represented by BASF, Bayer, academia by Staudinger at the University of Freiburg, and Mark at the University of Vienna.

After the war when Mark had moved to the United States, he created the first formal Institute for Polymer Research at the Polytechnic Institute of Brooklyn. Somewhat later, Sadron's Institute in Strasbourg was committed to macromolecular science. In other Universities, polymer chemists agglomerated; the University of Syracuse is an example. But no formal Institute was organized.

Starting in the early 60's, several institutions devoted to teaching and research in Polymer Science were organized. The Department of

Macromolecular Chemistry was created at Case Western University, Cleveland, the Rubber Institute at the University of Akron in Akron, OH and the Department of Polymer Science and Engineering at the University of Massachusetts in Amherst, MA. Interestingly enough, not much interest in Polymer Science was shown in the highly visible Universities. It took almost 3 decades until Material Science Departments (including Polymer research and teaching) were developed in Engineering Schools of selected prominent Universities.

In the 60's, there were questions among scientists involved in polymer research: Should we have a polymer scientist in every chemistry department? Also in prominent Universities? Or should we create institutes or departments in selected schools?

I was always on the side of the departmental approach. This is the reason that I went to and helped to develop a department of Polymer Science and Engineering at the University of Massachusetts. I was an academically trained organic chemist and an industrially trained technologist. I also had substantial experience in professional activities of polymer chemistry through leading offices in professional societies and editorial responsibilities.

As my scientific activities increased globally, I started to visit various Centers of Polymer Research. Some were located in this country but some were also located in other countries in Europe and Asia. Many of the institutions, far away at that time, did not have many contacts with the general polymer science community.

I decided to present some of the laboratories interested in polymer science, but more importantly, entire regions, by writing with my colleagues and friends about their institutions. I started by concentrating on Japan. My friends from Japan with whom I had close relationships, helped me to identify polymer science activities in various sections of the country. You will see most prominently presented the Kansai region (Kyoto and Osaka), Tokyo in three sections and the south and north of Japan.

When I spent some time in China, I was able to obtain the cooperation of some of my Chinese colleagues to help introduce macromolecular research into several parts of China, at that time a distant country. With their help I was able to describe polymer science activities in Beijing, Shanghai, Centers south and north of the Yangtze River and Changchun in Manchuria.

In Europe, with the help of my friends, I was able to describe the polymer activities in Sweden, Finland and Italy, especially Milan, the center of polymer research in Italy, but also research in Poland, the former Czechoslovakia and the Slovak Republic.

I should not forget to mention prominently the series of articles, which I wrote with my colleagues on Centers of Polymer Research in Austria and Hungary.

As I mentioned with regard to the articles on "Personalities" the writings on "Centers of Polymer Research" (primarily from 1980-2000) depended on the active cooperation of the individuals in these countries. It was not easy to obtain the information on polymer science in all the activities in these countries. A number of these Centers were behind the Iron Curtain. With patience and the sometimes-risky willingness of my friends we were able to write about the Centers of Polymer Science as recorded in the Polymer News articles. It shows and records the activity in Polymer Science in this part of polymer history.

I am happy with the public's interest with the articles that we produced. It was to a great extent only possible because of the cooperation of my friend Gerald S. Kirshenbaum, the Editor of Polymer News.

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