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In Memoriam

Professor Toshio Hata

Toshio Hata, the 2nd President of The Adhesion Society of Japan (ASJ), passed away on December 31, 2009. He was going to be 97 years old on January 5, 2010, the day when his funeral ceremony was held in Tokyo. Because he had been well known in Japan as a great researcher, an educator in polymer science and also a social activist for a long time, many people engaged in polymer science, adhesion science and technology in academia, in industry and in other areas lamented his death.

He obtained his B.S. and Ph.D. from Tokyo Institute of Technology in Applied Chemistry. In the early stage of his career, he started his study on adhesion and related phenomena. In 1947 he derived an equation of peeling strength as a function of work of adhesion and peeling angle: $W_a = P(1 - \cos\theta)$. And, then, he showed that the dependence of peeling strength upon rate of peeling could be described by an equation derived using a mechanical equivalent model. He also studied the surface chemical aspects of adhesion. He published the experimental data of surface tension, interfacial tension and contact angle of a variety of polymer systems, and proposed a method to estimate the unknown parameters. His papers and books have been a useful guide to adhesion science, especially for newcomers.

After spending several years in a kind of social activism, he resumed his research work and produced significant results on structure and properties of polymers and composite materials, including adhesion. Many of his former students became university professors and industry executives. After retiring from the Tokyo Institute of Technology, he moved to Gunma University as a professor, and then served as President of the University for six years.

More than 30 years ago, he said to a friend, "I am going to retire from being a professor, but I'll never retire from being a scientist." Even after retirement, he often attended a variety of symposia, committee meetings and so on. His questions and comments always

came straight to the point. He presented his paper on surface energy of polymer solids at the 10th meeting of The Adhesion Society (USA) in Williamsburg, Virginia in 1987 (at the age of 74), and on transcristallinity of polypropylene at the 16th meeting of The Adhesion Society in Williamsburg in 1993 (at the age of 80).

In any committee meetings he attended, he often proposed his quite unique ideas, according to which we planned various projects in the ASJ. When he was about 70 years old, he organized the Research Group of Pressure Sensitive Adhesives within the ASJ. Many young specialists and some university professors joined this group because they could regularly enjoy stimulating discussions and communication with each other. A few years later, he led a Study Tour Team composed of some members of this group to visit several well-known chemical companies in the US and Europe in order to exchange information about adhesives and pressure sensitive adhesives. Several technical presentations were exchanged at each company the team visited. Since that time, the ASJ has frequently repeated this type of study tour.

In his 60s he proclaimed his opinion in the Journal of ASJ that the ASJ should hold the international adhesion meeting in Japan, because the Society had not yet held such an event, despite the fact that the Society is the oldest academic adhesion society in the world and that, within the Society, there must have been considerable accumulations of scientific and technical studies on adhesion. It took more than 10 years, however, before his idea was realized, because the executive board members except Hata had been worried about securing funds. As soon as the ASJ made a formal decision to hold the International Adhesion Symposium (IAS'94) in Japan for the first time, he began visiting numerous companies to ask their presidents for funding. In most cases, he gained their understanding and cooperation. As an honorary general chairperson of the organizing committee, he took the initiative to prepare for the Symposium. In the end, the meeting was well-attended and was the most successful event which the ASJ had ever held. He looked very happy to be able to welcome lots of friends from all over the world and to have wonderful talks at the symposium in Yokohama. Without his enthusiasm, endeavor and leadership, the symposium could not at that time have been held in Japan. He had thus contributed to the progress of the ASJ for a very long time even after he had retired from his official position.

He was a person of varied attainments and an affable personality, so he had numerous friends worldwide, and lots of younger persons admired him. Meetings which he attended were always quite exciting and enjoyable.

In the last year of his life, he wrote a manuscript to be published in *The Journal of ASJ* in which he wrote his last words as to how the ASJ must be in the future, despite the fact that he was then suffering from the pains of his illness. And after that, he enjoyed reading about 20 historical novels in bed, and on the last day he was just tired of reading and tried to have a little rest. But he fell asleep, never to wake up again.

Surely, he fully enjoyed living his unusually successful long life, which should be celebrated.

H. Mizumachi

Professor Emeritus, The University of Tokyo

The 10th President of the Adhesion Society of Japan