

PROLOGUE



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Scientific research is a never-ending journey of knowledge. There is more meaning in experiencing various encounters and making a good journey itself rather than reaching the destination. Excellent research nurtures talented youths and contributes to the society. The passage of my life has been decided by innumerable coincidences and a very few inevitabilities. I followed the guideposts on the road as I went, but as I encountered the unexpected, I stopped and ended up wandering. This was all so fascinating. Looking back on the path I have taken, I cannot be sure I made the right decisions at the crossroads I came across. It was not easy to accomplish what I intended to do, but sometimes, things eventually went the way I had wished. My life has not been straightforward.

My childhood started in Kobe, Japan, and I moved to Kyoto, Nagoya, and then to Tokyo. As my environment changed, I took on each new challenge with sincerity, one after another, and before I knew it, I had arrived at where I am today. Originally, my intention was not to devote myself to academia. Because of my family's background, I was raised to be an industrial engineer, and I also received education to become one. However, the opportunities I had in graduate school and the guidance of my mentor led me to a long career as a university academic. As a consequence, I have gained many acquaintances not only in Japan but also in other countries as well as in industry and have lived a happy life as a researcher for half a century.

Science teaches us the principles of the natural world. It provides us with the most

powerful way of thinking to understand all things in the universe objectively and to deal with society in a rational manner. I am not sure how well I have fulfilled my role as an educator, as I did not have the broad knowledge that an academic or scholar is expected to have. However, having lived my life with a strong passion for chemistry, I believe that as a scientific researcher, I was able to play a certain role in the progress of science by challenging the unknown and the impossible.

Furthermore, science-based technology is the only way for Japan, a country with scarce natural resources, to survive the international competition of this century, and it is also a pillar of international cooperation to solve various problems for the survival of humanity. From this perspective, I feel that I was able to make a small contribution to the development of chemical technology. Although I am oriented toward self-realization based on my own ideas and intentions, I have avoided living a self-centered life. Therefore, at the request of the government, I have also participated in the administration of science, technology, and education, and have been involved in the management and administration of a national research institute. During this time, I have shared my values and beliefs in many places, and I have argued that our planet, with its 8 billion people, faces many serious sustainability issues, including climate change, resource and energy depletion, biodiversity loss, and the spread of infectious diseases. Together with the younger generation, I would like to devote the remainder of my life with sincerity to the creation of a new society.

In this autobiography, I am given the opportunity to reflect on my young days and my

60 years of experience as a researcher, educator, and administrator. As a chemist, I have published research papers in journals and presented my scientific findings at international conferences. However, it never occurred to me to write about my personal life and journey. Many things have remained closed until now.

The most important thing to remember is that human life is unique to each person and no two journeys are the same. Looking back, I should say that I have been fortunate enough to have lived a fulfilling life, both publicly and privately. Some coincidences certainly worked positively, but I may have been unaware of many negative coincidences. The hardships of my impoverished youth have transformed to good memories in retrospect. Time moves in one direction and never goes backwards. My family environment has also changed dramatically. In this book, there are events that my long-time wife, Hiroko, and my sons, Eiji and Koji, do not know about. Under the tutelage of predecessors from around the world and in many other fields, together with the help of seniors and friends, I was able to navigate ups and downs, and overcome difficulties. I must once again express my gratitude to them, many of whom have already passed away, and whom I truly miss nowadays.

I would be grateful if readers who shared the same era with me could sympathize with the fact that we have seen similar landscapes. Those who will live in the future must now decide what they should be and where they should stand. For the younger generations, who are full of sensitivity and have different cultural backgrounds, I would be more than happy if the footsteps of a Japanese chemist could serve as a small guide.