



*Y. Ozawa*

## PROFESSOR YUKICHI OSAKA.

Professor Yukichi Osaka, who has recently celebrated his sixtieth birthday and retired from the Chair of Physical Chemistry at Kyoto Imperial University, was born on December 22nd in the second year of Keio (January 27th, 1867), at Daishoji in the Province of Kaga, Japan. He was the second son of Heihachi Amaya, and was adopted by his uncle, Nagashi Osaka, who belonged to one of the most honorable families in his province, as his heir. From his boyhood, Yukichi Osaka was distinguished for diligence and earnestness in his studies, manifested always by his superiority over the rest of his class. He came to Tokyo in 1885 and finished his general education there; he then took the course of chemistry from 1889 to 1892 at Tokyo Imperial University, where he was greatly influenced by his master, Professor Joji Sakurai, the present President of the Imperial Academy and a Privy Councillor. Professor Sakurai is a great personage in present-day Japan and his name must be placed in the first rank among the names of those who have actively promoted the progress of Science in Japan, particularly in the domain of Chemistry. The master's influence always remained throughout the later career of his pupils, and it was so with Professor Osaka. His paper on "Acidimetry of Hydrogen Fluoride", the result of a piece of research conducted in collaboration with Prof. T. Haga and published in the Journal of the Chemical Society of London in 1895, was his first contribution to science. In the autumn of 1892, he was appointed to the professorship of chemistry at the Fifth High School in Kumamoto, where he remained till 1896. On his return to Tokyo, he was appointed to the Chair of the same subject at the Higher Normal School in Tokyo, and in 1899 he was sent as a government student to Europe, where he studied physical chemistry under Professor W. Ostwald at Leipzig University, and under Professor Nernst at Göttingen University. This was the most brilliant epoch in the development of classical physical chemistry; its importance was daily increasing as a new branch of science and excellent works in this field were appearing day by day. Many students from all parts of the world gathered under Professors Ostwald and Nernst; Dr. Osaka worked among them, and his indefatigable industry resulted in the publication of several important papers, some of which will be referred to later on. After his return to Japan in 1902 he remained one year in the Higher Normal School in Tokyo, and received the degree of Rigakuhakushi (D. Sc.). In the autumn of 1903, he was appointed to the Chair of Applied Electro-chemistry at Kyoto Imperial University, and in the following spring,

he was transferred to the Chair of Physical Chemistry at that university, which had been rendered vacant by the death of its first occupant, Professor Kenjiro Ota. For more than twenty three years, he occupied this chair as one of the most eminent investigators and teachers in this university until his sixtieth birthday, December 22nd, 1926, when, having attained the age limit, he retired. Soon after this, he received the honour of being elected a Professor Emeritus of this university. From 1916 to 1918 he was the Dean of the Science Department of this university, and under his administration, the department underwent a great development by the addition of the institutes of Zoology and Botany.

Recalling the researches which he has contributed for the benefit of science, we must first point out two particularly excellent papers: The first is "Ueber die Birotation der d-Glukose", which has now become a well-known classical work upon the catalysis of the hydroxyl ion. He showed that the decrease of the rotation of several kinds of sugars proceeds with time by the formula of unimolecular reaction, and that the velocity of the decrease of the rotation of d-glucose is accelerated by the presence of each of the hydrogen and hydroxylions, the effect of the latter being strikingly great. He pointed out that the measurement of this decrease of rotation is therefore one of the most accurate methods of determining the hydroxylion. The other paper is "Ueber anodische Oxydation von Metallen und elektrolytische Sauerstoffentwicklung," published jointly with Professor A. Coehn. They investigated the phenomenon of overvoltage in the discharge of an anion such as the hydroxyl ion on metal surfaces, and described the remarkable behaviour of nickel with which the solution of potassium hydroxyde decomposes at about 1.3 volts while with platinum it requires about 1.7 volts. This is also a classical paper on anodic over-voltage.

During his active service at Kyoto Imperial University, very many papers were published under his own name or under those of his pupils. Special attention is called to his works relating to some heterogeneous equilibria, especially on the systems: salts and water, to which he devoted much time, thought and labour. The scientific importance of such works is so clear that there is no need here to dilate on it, but when we recollect that such investigations had great practical value also, especially in the time of the Great War, we can see how paramount are the investigations in this field, and can appreciate the great merit of his original contributions. So far as Dr. Osaka himself was concerned, however, the technical application of his researches was entirely outside his purpose. The serenity of his character and the keenness of his love of science are clearly manifest in his selection of subjects for research, and in his mode of investigation throughout his scientific career. Only by dint of his keen love of science, was he

able to accomplish the solution of some of the very complicated systems of equilibrium treated.

He was not only an able investigator, but at the same time, he was an excellent teacher and research director, always in the laboratory, going from one student to another, arousing and maintaining their interest in the work, and ready to discuss with them any point of difficulty arising out of their studies. His attitude toward any student of his was really that of a father to his son, and no one who had once worked in his laboratory ever could put out of his mind the happy memory of his master, nor fail to maintain his devotion toward that master forever throughout life. His helpfulness on all occasions was not limited to the inside of the laboratory only; all friends and students entertain a vivid impression of his cheerfulness and good humour, of his private charity and benevolence, and of his simplicity of manner and purity of life.

He was also deeply interested in the teaching of chemistry in general, and wrote an excellent text book of chemistry for middle schools, the first edition being published as early as 1897, including many ideas of physical chemistry, which were at that time not popular in that grade of chemistry teaching. It was his opinion (also that of his master, Professor Sakurai) that the principal ideas of physical chemistry ought to be included in the chemistry taught in secondary schools; and owing to their efforts the importance of physical chemistry is more widely recognized here in Japan than, perhaps, in any other country. From that time till now, his text-book has been so popular, that most young Japanese of to-day have learned chemistry for the first time in their lives out of this text-book, always receiving great influence from it. This service rendered by him for the development of chemistry in Japan is no less meritorious than that of his scientific work.

Since retirement, he has been enjoying his leisure in perfect health, surrounded by his happy family in a peaceful environment; he is still devoting the better part of his time to aiding in the general development of chemistry in Japan.

Shinkichi HORIBA.

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