

BULLETIN OF THE INSTITUTE  
FOR CHEMICAL RESEARCH

KYOTO UNIVERSITY

Vol. 42, No. 6

*Special Issue on Electron Microscopy*

*Published bi-monthly by*

THE INSTITUTE FOR CHEMICAL RESEARCH  
KYOTO UNIVERSITY  
KYOTO, JAPAN

November, 1964

*(Bull. Inst. Chem. Res., Kyoto Univ.)*

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**History of Publications**

| Term                        | Vol.         | Title                                                                | Published       |
|-----------------------------|--------------|----------------------------------------------------------------------|-----------------|
| Jan., 1929-<br>Dec., 1947   | 1-16         | 化学研究所講演集<br>(The Reports of the Institute for Chemical Research)     | Indeterminately |
| April, 1933                 | —            | 10 Jahre Institut für chemische Forschung<br>(化学研究所創立十周年記念号)         | —               |
| March, 1949-<br>Dec., 1949  | 17-19        | 化研講演集<br>(The Reports of the Institute for Chemical Research)        | Indeterminately |
| March, 1950-<br>Sept., 1952 | 20-30        | 化学研究所報告<br>(Bulletin of the Institute for Chemical Research)         | Quarterly       |
| Dec., 1951                  | —            | The Commemoration Volume for the Silver Jubilee<br>(化学研究所創立二十五周年記念号) | —               |
| Jan., 1953<br>onwards       | 31<br>No. 1- | Bulletin of the Institute for Chemical Research<br>(化学研究所報告)         | Bi-monthly      |

## PREFACE

In the field of electron microscopy in Japan the Institute for Chemical Research of Kyoto University may claim to its position as a pioneer in the country having participated in making contributions to the development of the instruments and research works during the decades of its history. The first electron microscope of electrostatic type was installed in 1942 in this Institute in cooperation with Tokyo Shibaura Denki K.K. The ultra-thin sections of rayon filaments were used for the first time with success and a number of electron photomicrographs were obtained with this electron microscope. The result of study was published in an international journal in 1947 both by the author and Professor K. Kobayashi. Later they cooperated with Shimadzu Seisakusho K.K. in developing the electron microscopes of electromagnetic type, thus opening the way for the instruments to be used to more practical ends. It was in those days also that Professor E. Suito developed the works with an electron microscope and achieved comprehensive studies on the properties of various specimens of colloidal particles.

In 1954 both Professor Kobayashi and Professor Suito planned to construct a 300 kV high voltage electron microscope in collaboration with Shimadzu Seisakusho K.K. with a view to increasing the speed of electron beam and to protecting the specimens from the damage to which they are subject when exposed to the electron beams having moderate speeds. This high voltage electron microscope was completed, and became installed in 1957 in this Institute and has since been used to its full capacity, not only to the benefit of the Institute alone, but to the benefit of many research workers visiting the Institute from inland and abroad. It is very much to the credit of the Institute that it is in possession of the first high voltage electron microscope ever made in the world which is now used for practical purposes.

The success in completing the 300 kV electron microscope and its high utility encouraged the same members of the Institute to further their plan of constructing an electron microscope to be operated with a higher accelerating voltage, that is—500 kV, and quite recently they saw their success in this also. Thus the Institute has so far been able to lead the world in developing the high voltage electron microscope and promoting its utility.

At present the Institute is in possession of altogether about ten electron microscopes, including the two high voltage ones.

The companies other than those mentioned above, such as Akashi Seisakusho K.K., Japan Electron Optics, Laboratory Co., Ltd., and so forth collaborated with us, and the instruments made by them are also installed in the various laboratories and are being used in the studies of various fields of science and industry. Their utility is very extensive both in research works and for industrial purposes, as is seen in many scientific papers so far published by the members of the Institute in various bulletins and journals.

The present special issue of this Bulletin gives selected papers representing the recent activities of this Institute in the field of electron microscopy. Since the author

## PREFACE

has kept in touch with the development of the electron microscope for as long as twenty five years, from the time when the first electron microscope was installed in 1942 to the recent completion of the 500 kV high voltage electron microscope, it is with overwhelming feelings for him to present this issue before the public. It is hoped with great enthusiasm that the present special issue will benefit in one way or another our highly estimated fellow scientists and research workers all over the world.

Masao HORIO

*Kyoto, February, 1965*

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1 9 6 4

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京都大学化学研究所報告 第42卷 第6号

昭和40年7月10日 印刷  
昭和40年7月15日 発行

【非売品】

大阪府高槻市大学町1番9号

京都大学化学研究所

編集兼発行人 国 近 三 吾

大阪市福島区亀甲町2丁目62

印刷所 日本印刷出版株式会社

大阪市福島区亀甲町2丁目62

印刷者 小 林 積 造