

Source Books in the Modern Physics

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Recently interests in the history of science seems to be spreading in our country among scientists and students. Reflecting this tendency, classics in the modern physics in Japanese translation are being published or planned to be published. For example, a new translation of E. Mach's *Science of Mechanics*, which was once translated nearly forty years ago, has been published in 1969. But the most remarkable success is attained by, it seems, the *Buturigaku Koten Ronbun Sôsyô* (Classical Papers in Physics) which has been planned and edited by the Group for History of Physics.

The Group for History of Physics is a body of those who are studying or interested in the history of physics. Since 1958 they have been publishing more or less regularly a mimeographed circular *Buturigakusi Kenkyu* (studies in the history of physics) which is opened for articles, preliminary reports, memoranda, book reviews, abstracts, guide to literatures and so on. It was about four years ago that a plan was proposed to translate selected classical papers which either played a decisive rôle or propounded ingenious ideas in the development of modern physics. At first it was planned to publish the translated papers in successive numbers of *Buturigakusi Kenkyu*. But after that since the Tokai University Press, knowing this project, proposed to undertake its publication, the project was changed and a new plan was adopted to publish them in a form of series of books under the above mentioned title *Buturigaku Koten Ronbun Sôsyô*. The selection of papers was carefully considered and revised several times. The first volume was finally published in February 1969 and, as well as the succeeding volumes, has been, to a surprise and a delight of

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the editors, eagerly welcomed.

The *Buturigaku Koten Ronbun Sôsyô* restricts its scope to the generative period of the twentieth century physics and consists of following twelve volumes:

I. **Heat Radiation and Quanta** (edited by Tetsuo TSUJI)

This volume contains 14 papers covering the theoretical studies of heat radiation in the latter half of the nineteenth century which were inaugurated by G. Kirchhoff, were developed by L. Boltzmann, W. Wien, Lord Rayleigh, and J. H. Jeans, and culminated to the advent of quantum hypothesis of M. Planck.

II. **The Light Quantum** (edited by Tetsuo TSUJI)

This volume contains 7 papers of Einstein on the light quantum, the specific heat, the fluctuation of radiation field, and the emission of light by the atom; namely all the papers of Einstein on the quantum theory except those on the Bose-Einstein Statistics. Though *Collected Papers of Einstein* in Japanese translation were published in four volumes as early as in 1922 – 1924, the volume which was to be devoted to the quantum theory was eventually cancelled because of the difficult situation of the publisher caused by the Great Earthquake Disaster in Kantô area of 1923. The present volume therefore makes them for the first time available in Japanese.

III. **Old Quantum Theory** (edited by Tsuyoshi OGAWA)

Six papers by W. Wilson, J. Ishiwara, A. Sommerfeld, P. Ehrenfest, N. Bohr (1918), and J. H. Van Vleck are selected for this volume. They represent main stages in the development of quantum theory after Bohr's 1913 paper.

IV. **Theory of Relativity** (edited by Tetu HIROSIGE)

Beginning with A. Einstein's celebrated paper "Zur Elektrodynamik bewegter Körper," nine papers by Einstein, M. Planck, A. H. Bucherer, H. Minkowski, Gilbert N. Lewis, and R. Tolman are translated. Each of them played essential rôles in establishing, extending, and making clear the implication of the theory of relativity.

V. **Kinetic Theory of Gases** (edited by Akira TANIGUTI)

This volume contains 10 papers which cover the genesis of the kinetic theory of gases by J. C. Maxwell and R. Clausius and also the Loschmidt-Boltzmann and Zermelo-Boltzmann controversies.

VI. Statistical Mechanics (edited by Tetsuo TSUJI)

This volume consists of three papers of L. Boltzmann which laid the foundation of the statistical mechanics. They are: that of 1866 in which Boltzmann attempts to give a mechanical illustration of the second law of thermodynamics; that of 1872 in which the H-theorem is proved and the Boltzmann equation is derived; and that of 1877 which gives a statistical interpretation of the meaning of entropy.

VII. Radioactivity (edited by Sigeko NISIO)

This volume traces the development of the study of radioactive substance and its rays from its inauguration by H. Becquerel to the establishment of the concept of isotope. The paper in which W. C. Röntgen announces his discovery of X-rays is also included. The number of papers amounts to 15.

VIII. Electron (edited by Tetu HIROSIGE)

Six papers which established the existence of electron are collected. They cover the experimental studies by J. J. Thomson on the cathode rays, experimental and theoretical studies by P. Zeeman, H. A. Lorentz, and J. Larmor on the Zeeman effect, and the first determination of the elementary electric charge by J. J. Thomson.

IX. Models of Atom (edited by Tetu HIROSIGE)

This volume contains 10 papers which describe the experimental investigation related to the structure of atom by P. Lenard, J. J. Thomson, H. Geiger and E. Marsden, J. A. Crowther, E. Rutherford, and H. G. J. Mosely as well as a theoretical consideration of the atomic number by A. van den Broek.

X. Theory of Atomic Structure (edited by Eri YAGI)

This volume is devoted to theoretical inquiries into the structure of atom. The eight papers collected are those by J. J. Thomson, J. Perrin, H. Nagaoka, W. Ritz, A. E. Haas, and M. Planck and the celebrated 1913 paper of N. Bohr. A synopsis of the Nagaoka-Schott controversy on the stability of electron ring is also added.

XI. Electron Theory of Metal (edited by Sigeko NISIO)

This volume contains three historic papers by P. Drude (1900), H. A. Lorentz (1905), and N. Bohr (1911), which laid the foundation of and revealed the limitation of the classical electron theory of metal. Thanks to this volume

Bohr's thesis, which though very well known hardly anyone in Japan would have actually read, has been made easily accessible for students.

XII. Magnetism (edited by Tetsuo TSUJI)

Three great papers by P. Curie (1895), P. Langevin (1905), and P. Weiss (1907) which constitute the foundation of classical theory of magnetism are translated for this volume.

To each volume is added a brief historical account by the editor of that volume. Of these twelve volumes, vols. II, IV, VIII, X, and XI have already been published during 1969. The remaining volumes are scheduled to be published before the beginning of 1971.