
Books

Max Planck: Physikalische Abhandlungen und Vorträge. Vol. 1, 776 pp. Vol. 2, 716 pp. Vol. 3, 426 pp. Edited by the Union of German Physical Societies and the Max Planck Society for the Advancement of Science. Friedr. Vieweg & Sohn, Braunschweig, Germany, 1958. DM 150.00 per set. Reviewed by R. Bruce Lindsay, *Brown University*.

These three volumes are published as a memorial to Max Planck, who died on October 4, 1947 at the age of 89. As Max von Laue explains in the preface, it was felt by the German physicists that his memory could be much more appropriately and effectively honored by the republication of his principal scientific papers than by monuments in bronze or stone. The result is indeed an impressive work. All the important scientific papers which appeared in journals from 1879 to 1941 are faithfully reproduced by photomechanical methods to assure that they appear precisely in their original form. These occupy the first two volumes. The third volume contains a selection of Planck's most celebrated general lectures and essays on fundamental problems of physics, a field of communication in which he excelled in clarity and grace of expression. There are also numerous biographical sketches of distinguished physicists, mainly his contemporaries. This includes an interesting autobiography devoted mainly to a review of his scientific life. The volume is concluded with several obituary notices.

Planck of course wrote numerous textbooks and treatises, of which his *Heat Radiation*, *Thermodynamics*, and *Introduction to Theoretical Physics* are best known. Since they are still available in numerous editions no attempt was made to include them in this memorial edition of his works.

Physicists will find these volumes a veritable mine of information on the history of the most important aspects of theoretical physics in the first quarter of the twentieth century. It is thrilling to trace the scientific development of a great genius and particularly pleasurable in the case of an investigator who was able to express his ideas as clearly as Planck and who was rarely content to let the analysis speak for itself. Every major paper has a textual commentary emphasizing the physical ideas involved. To a greater extent than most great scientists Planck took the reader into his confidence with regard to the origin and growth of his scientific ideas. Consequently his papers are worthy of being read and reread as excellent illustrations of the psychology of invention in theoretical physics.

Planck's concern with the most general possible point

of view in physics, as contrasted with emphasis on special details, is well illustrated by his preoccupation with thermodynamics during a large part of his active career. His inaugural dissertation at the University of Munich in 1879 was on the second law of thermodynamics and he approached the whole problem of heat radiation, culminating in his invention of the quantum hypothesis, from the standpoint of thermodynamics. It is not without significance that as late as 1934 he was writing on the principle of Le Chatelier. But the founder of the quantum theory did not follow slavishly any one line of attack on physical problems, and the reader will find in these volumes much attention to most of the contemporary branches of physics including electromagnetic theory, relativity, statistics, atomic structure, and spectroscopy. The principal exceptions would appear to be radioactivity and nuclear physics, which reached an elaborate theoretical stage only toward the end of Planck's active career.

Reading of the papers from 1900 to 1920 highlights the somewhat ironical fact that for years Planck was not happy about the quantum hypothesis in radiation and in a certain sense became reconciled with his own brain child only when its highly successful application to a great number of other physical phenomena left no reasonable doubt of its prime position in modern physics.

Max Planck was an accomplished musician and was devoted to this avocation all his life. Acousticians will be interested to know that hidden away in this formidable array of articles on theoretical physics is a brief description of a demonstration by Planck of a new harmonium before the German Physical Society in 1893!

Physicists throughout the world owe a debt of gratitude to their German colleagues for the appearance of this work.

Proceedings of the Sixth International Conference on Spectroscopy (Amsterdam, May 1956). Edited by W. van Tongeren, F. Freese, E. H. S. van Someren. 663 pp. Pergamon Press, London & New York, 1957. \$25.00. Reviewed by Ralph A. Sawyer, *University of Michigan*.

This supplementary volume of *Spectrochimica Acta* contains the 108 papers (11 in summary form only) presented at the Sixth International Spectroscopical Colloquium which was held May 14-19, 1956 at Amsterdam. The papers from 19 different countries, including several Iron Curtain countries, are written in English, French, or German. Most of the French and German papers include an abstract in English. The papers are followed by brief question-and-answer discussion also in French, English, or German and most of the papers include a bibliography. The Dutch presiding officer presented his opening address in French and his closing address in English.

It is not possible to list all the contributions but the principal areas covered are (1) flame spectroscopy, (2) emission spectrometry, (3) arc emission, (4) spark