

Studies in Statistical Mechanics, Volume VI:

The Kind of Motion We Call Heat

A History of the Kinetic Theory of Gases in the 19th Century

by **STEPHEN G. BRUSH**, University of Maryland, College Park.

Book 1: Physics and the Atomists

1976. xi + 300 pages. Price: US \$24.75/Dfl. 70.00 ISBN 0-7204-0370-7

Book 2: Statistical Physics and Irreversible Processes

1976. xiv + 496 pages. Price: US \$59.75/Dfl. 165.00. ISBN 0-7204-0482-7

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This two-volume work provides a particularly comprehensive account of the development of kinetic theory and statistical mechanics up to the beginning of the 20th century.

The author's historical researches have gone far beyond any other books on the subject, filling in many more details and putting the history of kinetic theory in the context of 19th century scientific and intellectual history. In the course of detailed examination of the sources, both published and unpublished, the author has been able to throw much new light on the dynamics of scientific change, and to refute some generally accepted ideas about historical events. In one section of the work, he demonstrates the use of a kind of historical document which has rarely, if ever, been exploited by historians of science, namely, referee's reports.

The work is primarily directed towards physicists, but as it is not only concerned with technical aspects of the history of physics but also deals with cultural and philosophical connections, it will appeal to historians of science, and the discussion of Mach's attitude towards atoms will no doubt interest philosophers. Book 2 is completed by an unusually comprehensive bibliography.

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Book 2 - Part C. Problems. IX. The Wave Theory of Heat. X. Foundations of Statistical Mechanics 1845-1915. XI. Interatomic Forces and the Equation of State. XII. Viscosity and the Maxwell-Boltzmann transport theory. XIII. Heat Conduction and the Stefan-Boltzmann Law. XIV. Randomness and Irreversibility. XV. Brownian Movement. Part D. Bibliography. XVI. The Literature of Kinetic Theory. Index.

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