A HANDBOOK OF PHYSICS MEASUREMENTS; VOL. II: VIBRATORY MOTION, SOUND, HEAT, ELECTRICITY AND MAGNETISM

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ERVIN S. FERRY

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A HANDBOOK OF PHYSICS MEASUREMENTS

BY

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IN COLLABORATION WITH

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VOL. II

VIBRATORY MOTION, SOUND, HEAT, ELECTRICITY AND MAGNETISM

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PREFACE

In this present volume are given those measurements of quantities in vibratory motion, sound, heat, electricity and magnetism which experience has shown to be most available for college and industrial laboratories. In making the selection from the large number which have been tested under practical laboratory conditions, due consideration has been given to the particular determinations now demanded by science and industry, the degree of precision readily obtainable, and the time required for the performance of the experiment and the computation of the result.

In addition to the standard experiments in heat, the mechanical engineer will be especially interested in the methods for the determination of the economy effected by steam-pipe coverings, the thermal value of coal and the thermal value of gas.

All of the physics determinations in electricity and magnetism ordinarily made by students of electrical engineering are described in detail. In addition, considerable space has been devoted to work on damped vibration and harmonic wave analysis. This work is of great importance to the student of alternate current phenomena.

In many laboratories little attention is given to measurements in sound. The recent war, however, has emphasized so strongly the utility of such work, that no apology is made for the inclusion of a number of experiments in this subject.

As in the first volume, "Fundamental Measurements, Properties of Matter and Optics," each chapter consists of two parts. The first part includes definitions, a description of the apparatus, the general theory of the methods, and the derivation of the equations used in the determinations of the quantities considered in the chapter. In the second part of the chapter each determination is described in detail with respect to the theory and manipulation of the experiment, and the computation of the result.

E. S. F.

PURDUE UNIVERSITY, LAFAYETTE, INDIANA,
Dec. 2, 1918.

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