

UNITS AND PHYSICAL CONSTANTS

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Units and physical constants by J. D. Everett

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BY

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PREFACE TO "ILLUSTRATIONS OF THE C.G.S.
SYSTEM OF UNITS," PUBLISHED BY THE
PHYSICAL SOCIETY OF LONDON IN 1875.

THE quantitative study of physics, and especially of the relations between different branches of physics, is every day receiving more attention.

To facilitate this study, by exemplifying the use of a system of units fitted for placing such relations in the clearest light, is the main object of the present treatise.

A complete account is given of the theory of units *ab initio*. The Centimetre-Gramme-Second (or C.G.S.) system is then explained; and the remainder of the work is occupied with illustrations of its application to various branches of physics. As a means to this end, the most important experimental data relating to each subject are concisely presented on *one uniform scale*—a luxury hitherto unknown to the scientific calculator.

I am indebted to several friends for assistance in special departments—but especially to Professor Clerk Maxwell and Professor G. C. Foster, who revised the entire manuscript of the work in its original form.

Great pains have been taken to make the work correct as a book of reference. Readers who may discover any errors will greatly oblige me by pointing them out.

PREFACE TO FIRST EDITION OF UNITS
AND PHYSICAL CONSTANTS, 1879.

THIS Book is substantially a new edition of my "Illustrations of the C.G.S. System of Units" published in 1875 by the Physical Society of London, supplemented by an extensive collection of physical data. The title has been changed with the view of rendering it more generally intelligible.

Additional explanations have been given upon some points of theory, especially in connection with Stress and Strain, and with Coefficients of Diffusion. Under the former head, I have ventured to introduce the terms "resilience" and "coefficient of resilience," in order to avoid the multiplicity of meanings which have become attached to the word "elasticity."

A still greater innovation has been introduced in an extended use of the symbols and processes of multiplication and division, in connection with equations which express not numerical but physical equality. The advantages of this mode of procedure are illustrated by its application to the solution of the most difficult problems on units that I have been able to collect from standard text-books (chiefly from Wormell's 'Dynamics').

I am indebted to several friends for contributions of experimental data.

A Dutch translation of the first edition of this work has been made by DR. C. J. MATTHES, Secretary of the Royal Academy of Sciences of Amsterdam, and was published in that city in 1877.

Though the publication is no longer officially connected with the Physical Society, the present enlarged edition is issued with the Society's full consent and approval.