

**COMPRESSED AIR; A TREATISE
ON THE PRODUCTION,
TRANSMISSION AND USE OF
COMPRESSED AIR**

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Compressed air; a treatise on the production, transmission and use of compressed air by
Theodore Simons

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A TREATISE ON THE PRODUCTION
TRANSMISSION AND USE OF
COMPRESSED AIR

BY

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PREFACE TO SECOND EDITION

In preparing a second edition of this book, its character as an elementary treatise on the principles of Compressed Air has been maintained throughout. To bring the subject up-to-date, however, the greater portion of the chapter on Transmission has been re-written. Modern formulas were introduced with examples of their application. The important effect of altitude differences on Compressed Air installations has been illustrated by reference to new equations in Article 4 and by the example under Article 97. A new Table VIII, containing the principal Compressed Air formulas was substituted for the old table that has become superfluous. The obsolete Hurricane valve in Article 147 has been replaced by a description of the modern Ingersoll-Rogler valve.

Altogether, a general revision of the original text and the addition of new material brings the second edition of the book abreast of modern theory and practice.

THEODORE SIMONS.

BUTTE, MONTANA,
December, 1920.

PREFACE TO FIRST EDITION

This treatise is intended to give the student and the general reader such an insight into the natural laws and physical principles underlying the production, transmission and use of compressed air, as shall enable him to comprehend the operation of the various appliances employed for this purpose and to judge of their merit.

No attempt has been made to present in this book an extensive description of all the existing types of compressors or of the countless appliances using compressed air. The author's chief aim was to provide the student, who is interested in technical questions concerning the operation as well as the construction of compressors and air engines, with a background of understanding that will enable him, not only to solve the many theoretical problems connected therewith, but to make independent research into the seemingly unlimited possibilities of compressed air. The territory still unexplored is vast and full of promises to the intrepid explorer who enters the field with a thorough knowledge of all the truths discovered, as well as the pitfalls encountered, by those who have gone before him.

The numerous, carefully selected problems constitute what the author believes to be one of the strong features of this book. If ever any doubt lingers in the student's mind as to the meaning of certain principles or laws presented in the text and their practical application, a numerical problem will, as a rule, remove the doubt and make clear the meaning. Moreover, such problems make the student familiar with actual quantities, never revealed by mere formulas; quantities which are often startling to the uninitiated and impress him with the practical value of such formulas more forcibly than the mere text can do.

The author has endeavored to bring the work well within the comprehension of the average technical student who has a sound knowledge of the elements of algebra, physics and mechanics. Higher mathematics were used sparingly and only when they led to a simpler solution of certain problems. To the advanced reader some of the deductions contained in the book