

**ELEMENTARY MECHANICS  
FOR THE PRACTICAL  
ENGINEER: ENGINEERS' STUDY  
COURSE FROM POWER**

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Elementary Mechanics for the Practical Engineer: Engineers' Study Course from Power by John Paul Kottcamp

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**JOHN PAUL KOTTCAMP**

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**ENGINEERS' STUDY COURSE FROM POWER**

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## PREFACE

The subject matter of this book is an exact reproduction of a series of thirty lessons which appeared in *Power* as a part of the Engineers' Study Course. These lessons were intended as "Home Study" for those who had followed the previous courses given in *Power*. Each lesson was so arranged that the average "home study" student could thoroughly master the material given each week, before proceeding with the next lesson. To drive home the principles given, five study questions were inserted each week and the student was urged to solve these problems before referring to the answers which appeared in the next lesson. The fact that these questions combined with their answers formed a vital part of the original course is the author's only excuse for the manner in which they appear in the text.

The aim of the entire course was to present only those principles of mechanics which could be directly applied to the various phases of power plant operation; and the problems were selected with this same point in mind. These questions were intended to arouse in the reader a desire to know the "why" and the "wherefore" of every machine or piece of apparatus with which he might come in contact during his daily work.

THE AUTHOR.

BROOKLYN, N. Y.  
May, 1915.

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# ELEMENTARY MECHANICS

FOR THE

## PRACTICAL ENGINEER

### CHAPTER I

#### ELEMENTARY MECHANICS

The purpose of this section of the course, as of all that have preceded it, is to give a working knowledge of the fundamentals of mechanics sufficient for all practical needs. For this reason, only an elementary discussion of mechanics will be attempted.

To begin with, a few definitions will be given to fix the meaning of such terms as will be used from the start, then will follow simple explanations of the principles involved and practical applications of these principles will be given as examples or exercises, which will be made as pertinent as possible to power-plant problems.

To the average person the application of a principle is more interesting than a mere understanding of the principle by itself. For this reason the first few lessons, which will deal with definitions and statements of laws, may seem rather dry, but the student is urged to follow closely these introductory lessons so that he may more readily grasp the applications that will come later. Many will find that much of the early part of the course is familiar to them, but to others there will be new terms or at least new light on their meaning.

#### DEFINITIONS

**Mechanics** is that branch of science which has to do with forces and their action on bodies tending to produce a state of motion, change of motion, or condition of rest of these