Practical mathematics for beginners

Castle Frank
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PRACTICAL MATHEMATICS FOR BEGINNERS
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BY

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CAJORI
PREFACE.

The view that engineers and skilled artizans can be given a mathematical training through the agency of the calculations they are actually called upon to make at their work, steadily gains in popularity. The ordinary method of spending many years upon the formal study of algebra, geometry, trigonometry, and the calculus may be of value in the development of the logical faculty, but it is unsuitable for the practical man, because he has neither the time nor the inclination to study along academic lines.

But though Practical Mathematics secures more and more adherents, the subject is still in a tentative stage. The recent revision of the syllabus issued by the Board of Education only two years after its first appearance, is evidence of this.

The present volume is designed to help students in classes where the new course of work issued from South Kensington forms the basis of the lessons of the winter session. Such students are supposed to be familiar with the simple rules of arithmetic, including vulgar fractions; hence the present volume commences with the decimal system of notation. The modern contracted methods of calculation, which are so useful in practical problems, are not taught in many schools and they are therefore introduced at an early stage.

In the extensive range of subjects included in the present volume care has been taken to avoid all work that partakes of the mere puzzle order, and only those processes of constant practical value have been introduced. Since, in mathematical teaching especially, “example is better than precept,” a prominent place is given to typical worked out examples. In nearly all cases these are such as occur very frequently in the workshop or drawing office.
PREFACE.

The order in which the subjects are presented here merely represents that which has been found suitable for ordinary students. Teachers will have no difficulty in taking the different chapters in any order they prefer. Any student working without the aid of a teacher is recommended to skip judiciously during the first reading any part which presents exceptional difficulty to him.

So many practical examples of a technical kind, not usually to be found in mathematical books, have been included in this volume that some errors may have crept into the answers, but in view of the careful method of checking results which has been adopted, these will in all probability prove to be small in number.

I desire again strongly to emphasize what I have already said in another volume of somewhat similar scope. "Readers familiar with the published works of Prof. Perry, and those who have attended his lectures, will at once perceive how much of the plan of the book is due to his inspiration. But while claiming little originality, the writer has certainly endeavoured to give teachers of the subject the results of a long experience in instructing practical men how to apply the methods of the mathematician to their everyday work."

Mr. A. Hall, A.R.C.S., has read through some of the proof sheets, and I am indebted to him for this kindness. I also gratefully acknowledge my obligations to Prof. R. A. Gregory and to Mr. A. T. Simmons, B.Sc., not only for many useful suggestions in the preparation of my MSS., but also for their care and attention in reading through the whole of the proof sheets.

F. CASTLE.

LONDON, August, 1901.
PREFACE TO NEW EDITION.

Several important additions have been made in this edition. Sections dealing with Square Root, Quadratic Equations, and Problems leading to Quadratic Equations, have been added, and, where possible, more exercises have been introduced. Some corrections in the Answers have been made, and I am indebted to many teachers for calling my attention to the necessity for them; as it is too much to hope that there are no more mistakes in so large a number of figures, I shall be grateful to anyone who may call my attention to other inaccuracies.

In its present form the book is not only suitable for students of classes in connection with the Board of Education, but for candidates for the Matriculation examination of the London University under the new regulations; it will also assist students preparing for the Army and Navy Entrance examinations to answer the new type of questions recently introduced into the mathematical papers at these examinations.

F. C.

LONDON, November, 1902.
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