MODERN MATHEMATICS

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PREFACE

In this book the authors assume that the student is likely to undertake more individual effort rather than to work under group control. The problems have been separated into different vocational or occupational types. In this way it is hoped to maintain interest and to encourage further progress in any particular sphere and to indicate the type of problem, found in industry or at work, which can easily be answered by elementary mathematics. There has not, in any instance, been an attempt to invent a problem to fit any particular fundamental rule; where a problem obviously suggests itself then it is included, otherwise it is omitted.

It is also assumed that ability to work correctly simple mechanical processes in fundamentals has been attained, so that mechanical exercises, as such, are reduced to a minimum, and there is no apology for the omission of such ‘museum pieces’ as 4 miles 3 furlongs 2 yards 2 feet 5 inches × 29.

Knowledge of simple tables of weights and measures is also assumed, although, for the most part, the employment of these various units is confined to the sphere to which, by usage, they belong. For instance, cement is bought and used by the ton or cwt. or fractions of a cwt. Quarters, stones or pounds are not used when dealing with cement.

Those students, therefore, who propose to earn their living in industry or trade should find in the various types of example something which should appeal and consequently instruct by reason of its utility.

In this respect the sections on Logarithms and Formulae are particularly important. The principles involved have been
PREFACE

explained as clearly and simply as possible, and in the case of formulae brief descriptive text is introduced wherever these are used in order to stimulate interest and to illustrate a little of the wide application of the use of formulae in industrial and engineering work.

For simplicity of selection, the problems in the exercises are classified according to their application, thus:

A denotes that the problem deals with agriculture, farming, butchering, etc.

B denotes a problem in building, surveying or general constructional work.

Tr denotes a problem in transport (road, rail, sea or air).

T denotes a problem with technical application, including mechanical, electrical and structural engineering.

G denotes a problem of general interest.

The Tables of Logarithms and Trigonometrical Ratios printed on pp. 148–153 are included by the kind permission of the Cambridge Local Examinations Syndicate.

S. A. W.

J. C. H.

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