MENTAL ARITHMETIC

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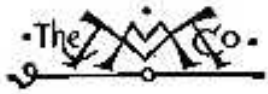
The

MENTAL ARITHMETIC

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PREFACE

THE purpose of mental arithmetic is to enable pupils to perform the simple computations which occur daily in business life, to introduce them to the art of reasoning, and to train them to think on their feet.

In writing this book the authors have aimed to give a large number and variety of easy exercises in the essentials of arithmetic; namely, the four fundamental rules, fractions, decimals, simple measurements, and per cent. They have kept to the core of the subject and have not allowed themselves to be diverted by the methods and practices of other text-book writers on this subject. Accordingly, conundrums which have done service for generations have been omitted. The hound no longer chases the hare; the fish with large head and long tail swims undisturbed in the briny deep; the ass and the mule sigh no more over their heavy burdens.

The authors have endeavored to make the book

an embodiment of the Socratic method of development. Witness the Decimal System of Notation, Compound Quantities, and Per Cent.

Throughout this book and the other books of this series, namely, the "Primary Arithmetic" and the "Elements of Arithmetic," the authors have closely adhered to modern mathematical and business methods of computation. Teachers are, as a rule, very conservative, and they are prone to adhere to old methods long after the old methods have become antiquated. As a result, pupils must unlearn as soon as they leave the schoolroom to enter any line of modern business many things they have been taught. To give an illustration: the method of reckoning change taught in the schoolroom does not accord with the actual common-sense business method. The business method of performing subtraction (the computers' method which is followed throughout this series of arithmetics) gives a thousand times better insight into the nature of subtraction from a rigorous mathematical standpoint than any of the other methods in use. The teacher who may be inclined to doubt this statement would do well to consult some standard authority on the nature of the fundamental rules, for example,

Durege, Professors Harkness and Morley, and Professor Chrystal.

Stress has been laid on the unit or analytic method of solution. This has been done whenever the authors have thought the method named to be the simplest. This is the case in Fractions, Decimals, and Proportion.

Mental arithmetic precludes the use of pencil and paper. The addition of long columns of figures, the multiplication of large numbers by other large numbers, the solution of complex examples which authors themselves could not perform orally, have no place in a mental arithmetic. The examples in a mental arithmetic should be of such nature that the average pupil may be trained to perform them orally with ease, pleasure, and profit. Pupils find enjoyment in making with alacrity simple arithmetical calculations, and if they are well drilled in this, they will attack the more complex problems in written arithmetic with greater vim and determination.

Throughout this book as well as throughout the other books of this series the authors have given close attention to the demands of modern business and modern life. The books have been written also from the mathematical point of view. The problem they