

**THE PUPILS'
ARITHMETIC: PRIMARY
BOOK. PART ONE**

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The Pupils' Arithmetic: Primary Book. Part One by James C. Byrnes & Julia Richman & John S. Roberts

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JAMES C. BYRNES & JULIA RICHMAN & JOHN S. ROBERTS

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THE PUPILS' ARITHMETIC
PRIMARY BOOK

PART ONE

BY

JAMES C. BYRNES, B.S., Ph.M.

**MEMBER BOARD OF EXAMINERS, DEPARTMENT OF
EDUCATION, NEW YORK**

JULIA RICHMAN

DISTRICT SUPERINTENDENT OF SCHOOLS, NEW YORK

JOHN S. ROBERTS, A.M., Ph.M.

**PRINCIPAL OF PUBLIC SCHOOL 52, MANHATTAN
NEW YORK**

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J.C.

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PREFACE

THE PUPILS' ARITHMETIC is an effort to meet current criticism of methods and results in the teaching of elementary arithmetic.

The manner in which the authors plan to regain for our schools that mechanical skill in computation which characterized an older time, while retaining what is valuable in modern theory and practice, is aptly epitomized in the title,—THE PUPILS' ARITHMETIC.

Part One covers the work of the first three years of school; Part Two, the work of the fourth year.

The authors have made prominent the following features :

I. A large number of exercises in pure arithmetic, affording abundant practice in the mechanical operations.

II. A large number of problems in applied arithmetic, affording practice in gleaning thought from the printed page and in applying the arithmetical principles previously learned.

III. The careful grading of the exercises and

problems, the avoidance of long numbers and lengthy processes in problem work, the regular alternation of exercises in abstract number on the one hand, and concrete problems on the other. The exercises, both abstract and practical, have been devised and arranged for oral work, seat work, and class drill.

IV. The model solution of problems by the shortest and most direct of the approved methods of computation.

V. The variety and interesting character of the problems. Occasionally, the problems are grouped about a central idea. However, since such grouping, when forced, frequently leads the teacher away from her object, the authors have elected generally to classify the problems about the mathematical principle or process upon which their solution depends. In the problems almost every phase of life that attracts children is touched upon. Undue prominence is not given to problems in dollars and cents. The *idea of rate* is presented in its manifold aspects of consumption, expenditure, growth, speed, production, accretion, etc. The language used is simple though not childish; stereotyped forms of stating problems have been avoided. Many words and phrases which may require explanation are printed in italics. Such explanation, together with the reading aloud of problems, serves to remove those difficulties of

language which frequently are the real cause of an apparent weakness in arithmetic.

As a book of reference for pupils, the text possesses the following advantages :

I. A simple inductive treatment of the explanations of principles and processes. Clearness is sought through the aid of pictures and diagrams.

II. Model forms of computation suitable for use in both school and office. Mathematical precision of statement has been jealously guarded.

III. A topical arrangement of the subject-matter and a series of cross-references to show the interrelation of topics.

These features are fundamental in a text-book designed for the use of children; they cannot be incorporated in any book based upon the spiral system. Practical teachers will perceive that these features render this book as valuable for the use of teachers as for the use of pupils. To the grade teacher, texts arranged on the spiral plan seem to be without order. Nowhere can she find a complete treatment of any one topic. As a guiding principle in a course of study in arithmetic the spiral plan is entirely sound in principle and practicable in operation, but it does not follow that a text-book presenting an author's interpretation and application of the spiral principle is adapted to all the varied courses of study in the many school systems of this country. Where several lines of work

are to be pursued at once they will inevitably cross and recross one another at different points according to the individual judgment and taste of the superintendent who plans the course of study and the teacher who interprets it. Both teacher and pupil are bewildered if the text-book arranged according to the spiral plan does not conform to the course of study based on that system. In any case the topics treated in such a text are not orientated with respect to one another or with respect to the individual teacher's term plan. This lack of definiteness in arrangement produces a corresponding lack of definiteness in teaching. For these reasons the work submitted herewith, though arranged on the topical plan, is adapted for use in school systems having the spiral system in arithmetic as well as for school systems following the traditional order of topics, but it leaves to each teacher the arrangement of the details of her term plan, within the limits prescribed by the course of study.

THE AUTHORS.

NEW YORK, April, 1909.