THE ARITHMETIC READER FOR THIRD GRADE PUPILS

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FRANK H. HALL

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BY

FRANK H. HALL,

AUTHOR OF " HALL'S HELPS IN THE STUDY OF HISTORY, OR THE BACKBONE OF UNIVERSAL
HISTORY," " ARITHMETIC OF THE FARM AND WORKSHOP," AND " ARITHMETIC
READER FOR SECOND GRADE PUPILS."

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CHICAGO.

The Lakeside Press
R. R. DONNELLEY & SONS CO. CHICAGO

SUGGESTIONS TO TEACHERS.

1. *The preparation necessary to the learner before beginning this book;*

(a) The pupil must be able to read without hesitation new matter of the grade usually found in the first half of a Third Reader.

(b) All the work that is found in the ARITHMETIC READER FOR SECOND GRADE PUPILS, must be mastered. Especially, should the pupil be familiar with the forty-five primary problems in addition, found on pages 23 and 65 of the Second Grade Book, and with the forty-seven primary problems in multiplication on pages 38, 69, and 95, and with the meaning of certain arithmetical expressions given on pages 41, 51, and 67.

2. *The preparation necessary to the learner before beginning any page of this book:*

(a) Before the pupil is allowed to attempt to read any one of the following pages the teacher should see that he is acquainted with every word, abbreviation, and sign, used thereon. The meaning of terms should be taught in this grade, not by defining them, but by using them. This is the natural method of learning new words. It is the method by which the pupil acquires a vocabulary of five hundred to seven hundred words before he enters the primary room. If the word *numerator* is to be taught, the pupil should first *see* a numerator—*see many numerators;* then be given the name; then hear and speak the word, and see its written form, until the symbol (the spoken or written word) instantly suggests that which is symbolized.

(b) By means of oral instruction and training, all the new number facts on a page should be taught *before the pupil attempts to read the page.* A MENTAL GYMNASTIC EXERCISE SUGGESTED BY THE PAGE ITSELF, SHOULD PRECEDE THE READING. If properly conducted, this will promote a mental vigor and acumen that will enable the pupil to see behind the words and signs on a page, that for which the symbols stand.

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3. If the work in the Second Grade Book has been properly done, the pupil, before taking this book, has learned something of the five fundamental arithmetical processes. He can solve little problems in addition, subtraction, multiplication, and in each of the two cases of division. He is familiar with the terms add, subtract, product, quotient, difference, etc. He cannot define them, but he can use them, and can understand the meaning of these words when he hears them, or sees them on the blackboard or on the printed page. In order to apply the fundamental processes to fractions, he has nothing new to learn, except to become acquainted with the objects to be numbered; with halves, fourths, fifths, sixths, etc. His attention should not *at first* be called to the numerical symbols for the objects, as, $\frac{1}{2}$, $\frac{1}{4}$, etc., but to the objects themselves, as, $\ominus$, $\oplus$, etc. If the pupil is familiar with that for which the word *fourth* stands, he will have no more difficulty in adding 1 fourth and 1 fourth than he has in adding 1 apple and 1 apple. Indeed, a large part of the work of teaching the application of the fundamental processes to fractions, is accomplished, when the pupil has become thoroughly familiar with the real fraction, and sees in every symbol fraction, as $\frac{3}{4}$, the real fraction for which it stands. The Pestalozzian principle, *the thing first, the name or the symbol afterwards*, must not be ignored in this work.

4. Nearly every lesson on the following pages has been tested in the school-room as thoroughly as it could be done with type-written matter, and the results, both in the mental training furnished and in the interest and enthusiasm manifested by the pupils in the vigorous exercise of their thought power, have been a revelation to the writer and to those associated with him.

It is believed that the teachers (representing more than twenty states and territories of the United States), who have found the ARITHMETIC READER FOR SECOND GRADE PUPILS helpful to them in their efforts to "make thoughtful, intelligent readers" and to "develop independence and strength in solving number problems," will be willing to give the Third Grade Book a trial. When this shall have been done, the author will be grateful for such criticisms and suggestions as the results may warrant.
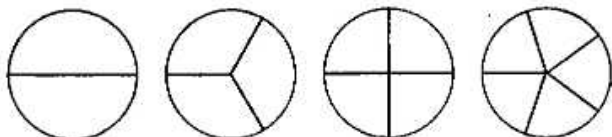
Waukegan, Ill., 1894.　　　　　　　　　　　　F. H. H.

THE ARITHMETIC READER.

1. One apple and one apple are —— apples.
2. One third and one third are —— thirds.

3. Three apples less one apple are —— apples.
4. Three fifths less one fifth are —— fifths.

5. Two fourths and two fourths are —— fourths.
6. Four fifths less one fifth are —— fifths.

7. John had one apple; he gave one fourth of it to Henry; he then had —— fourths of an apple.

8. Mrs. Brown gave one half of an apple to Mary and one half of an apple to Sarah; to both she gave —— ——.

9. Alfred had one half of an apple; William had one fourth of an apple; together they had —— fourths of an apple.

To the teacher.—Give many problems similar to those appearing below before the pupil attempts to read the page. Speak slowly and give time for thought. Use the diagrams. When the pupil takes the book, he should be able to read without hesitation.

1. Two halves are —— whole.
2. Two wholes are —— halves.

3. Three thirds are —— whole.
4. Two wholes are —— thirds.

5. Four fourths are —— whole.
6. Two wholes are —— fourths.

7. Five fifths are —— whole.
8. Two wholes are —— fifths.

9. Two times two apples are —— apples.
10. Two times two fourths are —— fourths.

11. One half of four apples is —— apples.
12. One half of four fifths is —— fifths.

13. Mary's mother gave one half of an apple to each of four children; to all she gave —— apples.

14. A good lady divided two pies equally among some hungry children, giving to each child one third of a pie; there were —— children.

15. Helen had a nice sweet orange; she gave two fifths of it to Sarah and two fifths to Jane; she then had —— ——.

16. At one half of a cent each, four apples cost —— cents.

17. If apples cost $\frac{1}{2}$ of a cent each, with three cents I can buy —— apples; with four cents I can buy —— apples.

TO THE TEACHER.—See suggestion on page 6; also read again section 2, (b), page 3. Require the pupil to draw a line one inch long and to divide it into halves, fourths, and eighths.

1. Three inches are —— half-inches.
2. Two inches are —— fourth-inches.
3. Four half-inches are —— inches.
4. One half of three inches is ——————.
5. One inch is —— eighth-inches.
6. Two inches are —— eighth-inches.
7. One half-inch is —— eighth-inches.
8. One fourth-inch is —— eighth-inches.
9. One and one half inches are —— eighth-inches.

10. One half of an inch and one fourth of an inch are —— fourths of an inch.

11. One half of an inch and one eighth of an inch are —— eighths of an inch.

12. One half of an inch less one eighth of an inch are —— eighths of an inch.

13. Two times three eighths of an inch are —— eighths of an inch.

14. One half of four eighths of an inch is —— eighths of an inch.

15. One eighth of an inch is contained in a half inch —— times. One fourth of an inch is contained in a half inch —— times.