

**GRADED SCHOOL ARITHMETIC.
BOOK ONE. AN ELEMENTARY TEXT
FOR USE IN PUBLIC AND PRIVATE
SCHOOLS, FROM THE FIRST TO THE
FIFTH YEAR, INCLUSIVE**

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Graded School Arithmetic. Book One. An Elementary Text for Use in Public and Private Schools, from the First to the Fifth Year, Inclusive by Frank J. Browne

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GRADED
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BOOK ONE

**AN ELEMENTARY TEXT FOR USE IN PUBLIC AND
PRIVATE SCHOOLS, FROM THE FIRST TO
THE FIFTH YEAR, INCLUSIVE**

BY

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PREFACE.

THIS text-book is presented with the belief that it supplies the demand for better methods of presenting the subject.

As to the general method employed, the author is permitted to quote from a bulletin on "The Teaching of Primary Numbers," by Professor Frank F. Bunker, of the San Francisco State Normal School:—

10
0
0
0
5
2
11
The study of every topic generally included in a course in arithmetic can be begun either from the objective side or from the side of the purely formal. For instance, in beginning the study of fractions the teacher can give a more or less extended course wholly within the field of the concrete, or she may choose to begin with the formal and mechanical side,—the side which is concerned alone with the various manipulations of fraction symbols. Just so with square root, with division, with multiplication, or in fact with almost any phase of arithmetic. On the one hand, there is the field of the objective,—the concrete; on the other, the field of the formal. Careful observation of practice-work will show, as we have just said, that facility in one field will by no means give facility in the other. A child, by careful teaching in the field of the concrete, will soon acquire great skill in adding simple fractions, and yet he may never have seen those same fractions expressed by figure symbols. He does this by reason of the fact that to him a fraction is as much a concrete thing as is his dog or his horse. To him, adding fractions is nothing more than calling up and counting mental images of familiar things. On the other hand, the mind is never more devoid of mental images than when engaged in formal calculation. To have images of things floating around at such a time means that attention is diverted, with ineffectiveness as a consequence. Obviously, the child needs training in both these fields. He needs to be accurate and tolerably rapid in the mechanical work of

fractions, and at the same time he needs the power to see visually the relation between one fourth and one third of a foot."

From a standard work on arithmetic, published about forty years ago, is taken the following extract, which accords with the more recent authorities on number-teaching:—

"All reasoning is *comparison*. A comparison requires a standard, and this standard is the *fixed*, the *axiomatic*, the *known*. The law of correct reasoning, therefore, is to compare the *complex* to the *simple*, the *theoretic* to the *axiomatic*, the *unknown* to the *known*. The law is kept prominently before the mind in the development of this work, and upon it are based its solutions and explanations."

As to subject-matter, the book is graded to suit the mental capacity of the pupil as he moves upward, through the grades of the public schools. Not all subjects to be found in other arithmetics are treated, but the matter of *relation* is presented so effectively, that it is believed the pupil will be able to apply the principles to the many details which may arise in his experience.

The teacher should always remember to provide inductive exercises, to make clear any principle not fully mastered by the pupil. There is no better test of a pupil's insight than original problems, which should be required at every step of progress.

As to typography, much care has been exercised to make this book superior to others in artistic finish. Its attractive style adds to its value as a text.

With the hope that it will inspire deeper interest in the subject, and will be of service to all who may use it, the consideration of schools and teachers everywhere is invited.

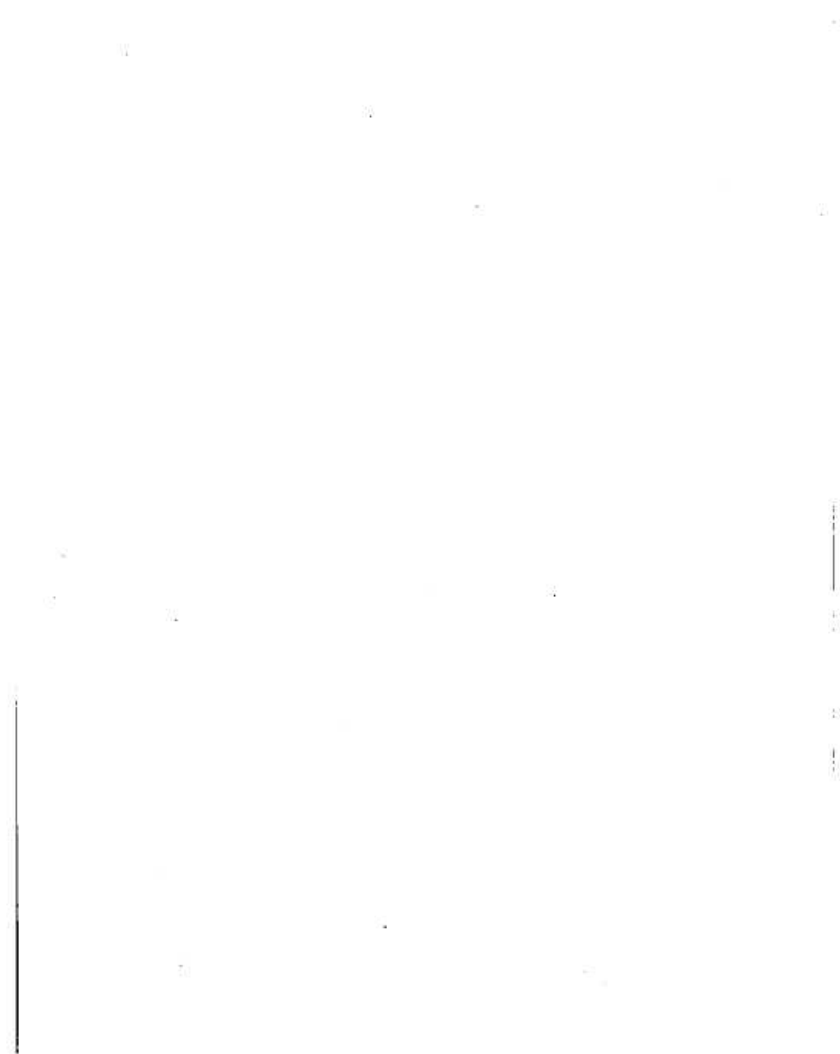
FRANK J. BROWNE.

SAN FRANCISCO, CALIFORNIA,
March, 30, 1903.

COURSE OF STUDY.

FIRST YEAR, IN HANDS OF TEACHER TO PAGE 25
SECOND YEAR, IN HANDS OF TEACHER TO PAGE 55
THIRD YEAR, IN HANDS OF PUPIL PAGES 7- 97
FOURTH YEAR, IN HANDS OF PUPIL PAGES 75-151
FIFTH YEAR, IN HANDS OF PUPIL COMPLETED, WITH REVIEW

ORIGINAL PROBLEMS SHOULD BE REQUIRED THROUGHOUT THE COURSE.



BOOK ONE.

GRADED SCHOOL ARITHMETIC.

1. Draw on the blackboard a line one foot long.
2. Show that one foot and one foot are two feet.
3. Show that one foot and two feet are three feet.
4. Show that two feet and one foot are three feet.
5. Show that one foot and three feet are four feet.
6. Show that three feet and one foot are four feet.
7. Show that four feet less one foot are three feet.
8. Show that four feet less two feet are two feet.
9. Show that four feet less three feet is one foot.
10. Show that three feet less one foot are two feet.
11. Show that one half of two feet is one foot.
12. Show that one half of four feet is two feet.
13. Show that two and one and one are four.
14. Count to ten, and from ten back to one.
15. Read and write numbers to ten.

Write and read—

- | | |
|-------------------------------|---------------------|
| 16. 1 foot + 1 foot = 2 feet. | 26. \$1 + \$1 = \$2 |
| 17. 1 foot + 2 feet = 3 feet. | 27. 2 + 1 = 3 |
| 18. 1 foot + 3 feet = 4 feet. | 28. 3 + 1 = 4 |
| 19. 2 feet + 2 feet = 4 feet. | 29. 2 + 2 = 4 |
| 20. 2 feet - 1 foot = 1 foot. | 30. 2 - 1 = 1 |
| 21. 3 feet - 1 foot = 2 feet. | 31. 3 - 1 = 2 |
| 22. 3 feet - 2 feet = 1 foot. | 32. 3 - 2 = 1 |
| 23. 4 feet - 1 foot = 3 feet. | 33. 4 - 1 = 3 |
| 24. 4 feet - 2 feet = 2 feet. | 34. 4 - 2 = 2 |
| 25. 4 feet - 3 feet = 1 foot. | 35. 4 - 3 = 1 |