ELEMENTS

OF

WRITTEN ARITHMETIC.

BY CHARLES DAVIES, LL. D.,

THOR OF A FULL COURSE OF MATHEMATICS

New York:

UBLISHED BY BARNES & BURR,

51 and 53 John Street.

CHICAGO: GEORGE SHERWOOD.

ST. LOUIS: KEITH & WOODS.

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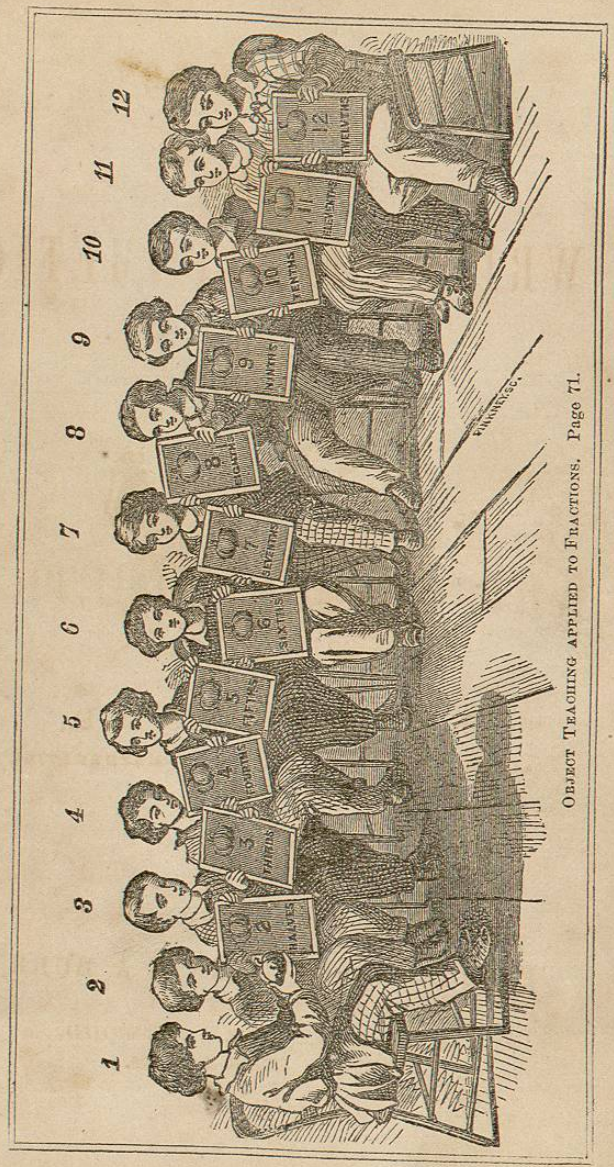

OBJECT TEACHING APPLIED TO FRACTIONS. Page 71.

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BY CHARLES DAVIES,

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PREFACE.

IT has become a settled principle in the science of teaching, that abstract principles and their elementary combinations must be first presented to the mind by the aid of sensible objects.

The eye is an active and an efficient agent in the acquisition of elementary knowledge. The elementary ideas of Number and Space, are acquired from things which are seen and handled, and the logical combinations of these elementary ideas make up the entire science of Mathematics.

It is the design of the present work, to present to the mind of the pupil the art, and to some extent, the science of Arithmetic, by a series of carefully constructed formulas of operation, with simple and concise rules. It is believed, that for beginners, the analysis, which explains the reasons of arithmetical operations, can, in most cases, be inferred from the operations themselves, and that elaborate explanations are hindrances, rather than aids.

The practical value of arithmetical instruction is dependent on the facility and accuracy of performing the operations. If, therefore, the operations are so arranged as to suggest the rules, the *practical* becomes the moving principle, and the rule, the consequence. This method of presenting the subject, suggests to the mind all the operations *through the eye*, and not *through the rule*. It is the method of *reading figures*, extended to the *reading of formulas*.

Although this book does not form a connecting link in the series, it should, nevertheless, be used after the Primary. It should, also, if convenient, be studied in connection with the Intellectual Arithmetic. Thus, the Formulas of Operation, the Rules, and the Analyses, will be presented separately, in their natural order, and in their proper connections.

FISHKILL LANDING,
July, 1863.

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ELEMENTS OF ARITHMETIC.

Definitions.

1. A UNIT is a single thing, or one.

2. A NUMBER is a unit, or a collection of units.

3. ARITHMETIC is the science of numbers and the art of computation.

4. An OPERATION is something done with numbers.

5. An ANSWER is the result of a correct operation.

6. A RULE is the direction for performing an operation.

Operations of Arithmetic.

7. There are five fundamental operations of Arithmetic: Notation and Numeration, Addition, Subtraction, Multiplication, and Division.

NOTATION AND NUMERATION.

8. NOTATION is the method of expressing numbers, either by letters or figures.

NUMERATION is the art of reading, correctly, any number expressed by letters or figures.

There are two methods of Notation: one by letters, and one by figures. The method by letters is called, the *Roman Notation;* the method by figures is called, the *Arabic Notation.*