FIRST LESSONS IN NUMBERS BY THE NATURAL METHOD

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First lessons in numbers by the natural method by John F. Brown

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JOHN F. BROWN

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BY THE

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JOHN F. BROWN.

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PREFACE.

THIS book is intended to furnish a course of study in arithmetic for young children, either at home or in school. As its title indicates, the exercises here outlined are meant to be the very first lessons in numbers that the child is to have. The plan here adopted is diametrically opposed to the so-called "inductive" method, or, more properly speaking, the *object* method of Pestalozzi and Colburn, which has become almost universally but not irrevocably established.

It is the fashion to teach arithmetic for a year or two without a text-book, and then to proceed by book something after this manner: —

Henry has one apple in one hand and one apple in the other hand. How many apples has he in both hands?

Sarah had two dolls and her Aunt Maria gave her one more. How many dolls did she then have?

And so on, *ad nauseam*, through a hundred, a hundred and fifty, or two hundred pages.

Two questions naturally occur to the uninitiated: —

First, if this be the instruction of the third and fourth years, of what nature is the more elementary sort of the first and second years? Second, if such insipid stuff be presented to the child under the guise of science, and if the subsequent teaching be what naturally follows from this beginning, what will be the condition of the pupil after he

has advanced in his studies and is supposed to have become somewhat intimately acquainted with this noble science of numbers? This latter question should seem to answer itself. Actual results are what might naturally be expected: there is no adequate return for the time and attention given to arithmetic in public or private schools; proficiency in figuring is not attained.

Some of the reasons why the prevalent methods of teaching have failed have been pointed out in the Introduction to "Numbers, and How to Use Them: by the Natural Method," to which the reader is referred. The prime error of the Pestalozzians is that they put too much stress upon the meaning of individual number names. The main purpose of the science of numbers is to enable one to compute, and computation does not depend upon a comprehension of each number made use of. Indeed, with the exception of small ones, numbers cannot be adequately comprehended. And why should the child be expected to fully grasp the meaning of each number name that is presented to him, when his elders are not called upon to do so with the ones they use? It is not so much numbers, as number, that one needs to comprehend, and, as soon as this fact is appreciated, the supposed necessity for keeping the child upon very small numbers will at once disappear. Closely allied to the error just mentioned, is the notion that our idea of numbers is derived from objects, and that objects must, therefore, be employed to teach numbers; whereas, as is shown in the before-mentioned Introduction, objects merely suggest the necessity for a number scheme, the scheme is developed as a pure science, independent of objects, and is afterwards applied to objects for practical use. Any

method of teaching numbers which does not follow this natural order is unnatural and forced. And thus the end for which the inductive teachers are striving so hard, that of imparting a knowledge of individual numbers, is not only of secondary importance, but this very end is ultimately not so well attained as by following the more obvious and rational procedure.

The two kindred errors just noticed are what make the trouble. There is a violent conflict between the earlier and later methods employed with the same pupil, and, instead of the various parts of the subject being linked together into a simple and harmonious whole, there is everywhere complication, confusion, and contradiction.

The purpose of this little book and its companion is to take the initiative in establishing a new order of things which shall put the science upon a common-sense and rational basis.

"Ring out the old, ring in the new,
Ring, happy bells, across the snow:
The year is going, let him go;
Ring out the false, ring in the true."

To the children of the present generation, to those who were once children, and to the children who are to come, this attempt to illustrate the A B C of the poetry of mathematics is inscribed.

J. F. B.

MAY, 1892.

CONTENTS.

	PAGE
Counting to Twenty	9
Counting to One Hundred by Tens	10
Counting to One Hundred by Fives	10
Counting to One Hundred by Ones	10
Figures	11
Exercises in Reading	11
Exercises in Writing	12
Counting from Zero by Twos; by Threes; by Fours	13
Counting by Twos, Beginning with One	13
Counting by Threes, Beginning with One; Beginning with Two	13
Counting Forward, or Addition	14
Counting Backward, or Subtraction	15
The Signs of Addition, Subtraction, and Equality	17
Counting by Fours	17
Exercises in Addition and Subtraction	18
Multiplication	18
Division	19
Counting by Fives	20
Counting by Tens	20
Exercises in Multiplication and Division	21
Counting by Sixes	23