

***MARY EVEREST
BOOLE***



***PHILOSOPHY
AND FUN
OF ALGEBRA***



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Philosophy and Fun of Algebra

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PHILOSOPHY AND FUN OF ALGEBRA

CHAPTER I

FROM ARITHMETIC TO ALGEBRA

ARITHMETIC means dealing logically with facts which we know (about questions of number).

"Logically"; that is to say, in accordance with the "Logos" or hidden wisdom, *i.e.*, the laws of normal action of the human mind.

For instance, you are asked what will have to be paid for six pounds of sugar at 3d. a pound. You multiply the six by the three. That is not because of any property of sugar, or of the copper of which the pennies are made. You would have done the same if the thing bought had been starch or apples. You would have done just the same if the material had been tea at 3s. a pound. Moreover, you would have done just the same *kind* of action if you had been asked the price of seven pounds of tea at 2s. a pound. You do what you do under direction of the Logos or hidden wisdom. And this law of the Logos is made not by any King or Parliament, but by whoever or whatever created the human mind. Suppose that any Parliament passed an act that all the children in the kingdom were to divide the price by the number of pounds; the Parliament could not make the answer come right. The only result of a foolish Act of Parliament like that would be that everybody's sums would

come wrong, and everybody's accounts be in confusion, and everybody would wonder why the trade of the country was going to the bad.

In former times there were kings and emperors quite stupid enough to pass Acts like that, but governments have grown wiser by experience and found out that, as far as arithmetic goes, there is no use in ordering people to go contrary to the laws of the Logos, because the Logos has the whip hand, and knows its own business, and is master of the situation. Therefore children now are allowed to study the laws of the Logos, whenever the business on hand is finding out how much they are to pay in a shop.

Sometimes your teachers set you more complicated problems than:—What is the price of six pounds of sugar? For instance:—In what proportion must one mix tea bought at 1s. 4d. a pound with tea bought at 1s. 10d. a pound so as to make 5 per cent. profit by selling the mixture at 1s. 9d. a pound?

Arithmetic, then, means dealing logically with certain facts that we know, about number, with a view to arriving at knowledge which as yet we do not possess.

When people had only arithmetic and not algebra, they found out a surprising amount of things about numbers and quantities. But there remained problems which they very much needed to solve and could not. They had to guess the answer; and, of course, they usually guessed wrong. And I am inclined to think they disagreed. Each person, of course, thought his own guess was nearest to the truth. Probably they quarrelled, and got nervous and overstrained and miserable, and said things which hurt the feelings of their