

within my province to say that Mr. Bird has, not only in the business for which he was specially appointed, but in inspection and examination work also, shown great judgment and capability, as well as untiring zeal.

*Arithmetic.*—Improvement has taken place in the teaching of this subject as well as in most of the others. This improvement is of a nature that might easily be passed over without much notice. It is not easy to get changes in the teaching of the subject effected. The reason is that many persons are capable of securing what may be called very fair practical results in it without being in the least interested as to the methods by which these results are obtained. It seems to them, possibly, that if they can pass all their children pretty well, sometimes even very well, at a standard examination there cannot be very much amiss. This is often the point of view of the practical man, but yet it is not a correct view even for him. There is the best of reason to believe that a very great deal depends on method—on *the way* in which teaching is done; this holds very specially in the teaching of arithmetic, which also deserves to be placed in the very forefront of the subjects which can lead to the acquisition of sound method—not merely the method of “doing sums,” but method in general—all method. Of course, there is room for fallacious reasoning from the following fact, but for all that it is a fact: It is not unusual to find a really good, smart arithmetician who is not an “all-round” clever man; but he is, usually at least, accurate in speech, in thought, and in action. Also, it is very usual to find that a man who is accurate in speech, in thought, and in action has also unusual capacity for work involving calculation. Here, then, there is *prima facie* some reason for linking the two together. Of course, it could be said that mere concomitance of skill in arithmetic with general accuracy is no proof of their causal connection. It may be suggested even that cleverness in general is the cause of both the skill and the accuracy; but, as has been hinted before, there are many clever men and women who are far from being either arithmeticians or accurate. Without pursuing this line of thought to its conclusion, it may be admitted that it is reasonable to suppose that accuracy and arithmetical power to a large extent react on each other, and to some extent *are* each other. If this is so, and if arithmetic can increase our comprehension of the accurate and the true—indeinitely for aught we know—it seems probable that in arithmetical training we ought to be contented with nothing but the very best; and that therefore labour bestowed on arithmetical method is exceedingly well bestowed. Any teacher who once gets the “hang” of this kind of consideration will never again feel inclined to say, when he sees a new and good method, “Yes, I dare say that what you adduce is quite right; but this old method will do well enough for me.” This long prelude is not intended to introduce anything dreadful. It is merely hoped that it may induce a teacher here and there to pay some attention to a matter that presents very little difficulty, but entails some amount of labour to give effect to. It is the very basis of arithmetic, of modern arithmetic, that is in question. What is maintained is that endeavour should be made to treat numbers at the very beginning of school work as being worthy of minute study—not number, but numbers. Training bestowed on 1, on 2, on 3, on 4, and so on, one after another, will not be thrown away. A child learns to count up to five, or even up to ten, long before it is taught to recognise or does recognise that five is made up of ones taken one after another. Still less does it recognise the fact that five is reduced to nothing by taking ones away from five. These little facts seem to us without interest and probably without utility; but it is not so. It is possible with the aid of the ten digits to keep a junior class interested for a quarter of an hour every school-day for three months, especially if (for the sake of the interest only) the work is made to deal with concrete things—marbles, sticks, stones, &c.—and to give that class sound and accurate knowledge, as far as it goes, of the meaning of such words as addition, subtraction, multiplication, division, numerator, denominator, mixed fractions, square, square root, divisor, quotient, remainder, multiplicand, and so on, and to know it not verbally merely, but through and through.

In the case of concrete quantities it has long been found highly beneficial to do what can be done in what is called mental arithmetic in the way of divesting problems of all unnecessary complications in order that they may be readily worked without slates or other mechanical assistance. The view is now gaining favour with us that this is not merely a useful expedient for making boys smart, but that it is the most powerful means for making them arithmeticians and preparing them to be mathematicians. So far as we have gone, there seems to be reason to believe that if boys can do suitable arithmetical work really well without the aid of writing, and deal with both pure numbers and concrete quantities, they are very much better equipped for the battle of life and for future mathematical triumphs than any quantity of mere slate-work could make them. Further, experience seems to show that training in *viva voce* arithmetic makes pupils more expert, more far-seeing, more self-possessed in all matters in which quantity or number is concerned, and, finally, better hands at slate and book arithmetic in all its forms, than does any other training whatsoever.

I have, &c.,

JAMES H. POPE.