

schools in which they may or may not be used. Since writing the references elsewhere to this subject, we have noticed the action of the Minister of Education in the official instructions issued to the profession to guard its members against becoming agents for publishers. Commendable as these regulations are, it will be obvious that they do not directly touch the matter we have referred to, and we trust that the Minister will see this, and practically, and finally, abolish the evil complained of. But to the book before us:—The Mental Arithmetic, Part II., of Dr. McLellan, possesses many of the essential elements of a bad text-book. It contains mistakes ranging from badly corrected proof to erroneous solutions of important problems. It is not properly graded, the simplest problems being found in the last half of the book; the solutions given are often too long and too intricate for mental exercise, and are too frequently not the simplest that might be given, nor the best adapted to train the mind of the pupil to habits of close mathematical reasoning. We scarcely know whom we should hold accountable for such errors as these: $1\frac{1}{2}\sigma = 1\frac{1}{2}$; $74 \times 6 = 644$; 140 is $\frac{2}{3}$ of 3502. Perhaps, too, the responsibility for the following may be doubtful: \$100 amounts to \$114 in one year and eight months, at eight per cent. But no possible doubt can exist in cases such as these:

"By selling tea which cost 48 cents a lb., I lost $11\frac{1}{2}$ per cent. of the selling price: what was the loss per cent. on the cost?"

"Sol.— $\frac{1}{2}$ of selling price lost $\therefore \frac{1}{2}$ of do = cost $\therefore \frac{1}{2}$ cost lost = $12\frac{1}{2}$ per cent."

"A man is engaged to work at \$1 a day and his board, with the understanding that he is to pay $37\frac{1}{2}$ cents a day for his board when idle: what must be the proportion of working time so that he may just keep out of debt, supposing that he works whole days and not parts in every case?"

"Sol.—Wages \$8; loss on idle days = \$ $\frac{1}{2}$, L. C. M. = \$88 = 11 working or 8 idle days $\therefore 1\frac{1}{3}$."

In the first of these since $\frac{1}{2}$ of the selling price = $\frac{1}{2}$ of the cost $\therefore$ required result is 10%; and in the second problem since three days' wages will pay his board for eight

days, he only need work three days out of eleven.

These are grave errors and can only be accounted for by attributing to the author culpable carelessness in the preparation of his book.

The work, again, contains too many solutions. A very trifling modification in a problem furnishes a pretext for giving a model for solving it. Even when no modification can be detected, we have separate solutions given. Thus each of the following questions is solved:—

1. A boy spends 1 cent of every 5 cents he has, how many does he spend of 20 cents?

2. A boy spends 2 cents of every 6 he has, how many does he spend of 30?

3. If he spends 4 out of every 10, how many does he spend of 60?

And no attempt is made to vary the solutions, the three being as nearly alike as the numbers used will permit. Nor are these solitary instances; needless solutions occur on nearly every page. So frequent are the solutions, in fact, that throughout the whole book, there is not, on an average, three unsolved questions for each question solved. The direct effect of this method of training is only too manifest. Independent effort receives no encouragement; the faculty for original investigation remains undeveloped, and new impetus is given to perpetuate "the rule and routine methods that have too long prevailed."

Too many of the solutions, on the other hand, are such as cannot be grasped by the mind of the average student as exercises in Mental Arithmetic. Some of these should be excluded on account of their length, occupying as they do, fully half a page of the book; others on account of their intricacy; being in reality simultaneous equations of three unknown quantities.

The "commission" question, page 16, is the only one mentioned in the preface, and may therefore, we suppose, be taken as having received from the author full consideration in its solution, yet even in this the most direct solution has not been reached. The following appears to us to be the much simpler solution: after the first com. has