

June afternoon you and I have heard the sing-song chorus, once heard never forgotten, of three times one are three, three times two are six, three times three are nine, three times four are twelve, three times five are fifteen—a dull, monotonous, heart- and - brain-wearying drudgery, productive of no better intellectual results than were secured in days of old by setting a playful, restless, little tot on a high form, and telling her to keep her eyes on her book. Let us ask ourselves what has the child learned who has by such methods with measureless pains, much disappointment to the teacher and not a few surreptitious tears of the scholar, acquired the multiplication table. He has learned to take truth on authority without inquiring as to foundations, to make the memory a store of meaningless phrases and unconsidered facts and to rest content when he does not understand. But he can now recite the multiplication table, and he has cultivated his power of associating and remembering verbal forms.

Some progressive teachers think they have made all the improvement possible on such modes of procedure as I have described, when they have given a child a set of counters of any kind or an abacus, have taught him to count out nine six times over, then to count the units in his sets of nine, —one, two three, etc., up to fifty-one, fifty-two, fifty-three, fifty-four, and lastly to remember the fact that he has so attained, “six nines are fifty-four.” Certainly this is a better mode of teaching.

Another method that readily suggests itself when pupils have learned to add, and which is fre-

quently used by teachers who aim at better things, is to set down a column of figures corresponding to the numbers in the table, in the example just used six nines in a column, and to add the column, the result being committed to memory.

Now certainly each method just described is a great improvement on merely learning by heart the combination of words “six times nine are fifty-four.” The memory of verbal forms is as much cultivated by exercise in the two latter modes as in the first, but, further, this great gain is secured that the child, is taught, however imperfectly, that he can discover truth and test statements for himself. Besides he is sure to understand what is meant by six times nine or by six nines. Yet something still beyond is much to be desired. The skilful educator distinguishes carefully the kinds of knowledge which furnish answers to the very distinct questions, What is? How do you know? and How do you account for? “What is?” appeals to memory. “How do you know?” demands demonstration. But “How do you account for it?” calls for explanation, and involves a much more thorough understanding of the subject than do the former questions. Now the pupil who has learned the multiplication table, no matter how mechanically can answer questions on it like the first. What are nine times six? Fifty-four, correctly answers the boy who in some belated survival of the schools of our grandfathers has had the multiplication table flogged into him. But if you ask him how he knows he can at best only reply, “I know it on authority; it was so on my table card.”