

selves and cross-questioned them in regard to a few of the most common objects which school children are supposed to know about, and the result was that their report seemed almost like a new revelation, a revelation of genuine ignorance. 33 per cent. of these children on entering school had never seen a live chicken; 51 per cent. had never seen a robin; 75 per cent. had never seen a growing strawberry; 71 per cent. of the Boston children had never seen growing beans, even in Boston. Our school text-books are based on country life, and the city child knows nothing, in the large cities, of real country life. Here is one instance: a large per cent. of these children, upon being asked how large a cow was, showed that they had little idea. One thought a cow was as large as her cat's tail. Another thought that a cow was as big as her thumb nail.

That was the first step. The next step was also taken in Boston. We undertook to measure the children of Boston. These measurements have shown first that the average girl is taller and heavier than the average boy from 13 to 14½ years old, but all the rest of her life she is lighter and smaller. Another result reached was that the child's body does not grow alike in all parts at all periods. Certain parts seem to grow and get their force and then to rest for a time. The abdomen, the hips, and even the pupil of the eye has its periods of growth and periods of quiescence. So that growth in all our organs is a more or less intermittent process.

Now think of the immense significance of that single fact for education. We have not yet effected a complete record, but as soon as we know when the adolescent period is and how long it lasts in all children, and as soon as we have the record of this nascent period, we have a basis of education which has never been known before. Suppose we are considering manual training, which causes a great deal of strain upon the hand and fore-arm. It should last through this nascent period in which the hand grows in strength more than it does before or after. Suppose manual training is delayed until after that period is past, then the force that nature gives has been allowed to run to waste.

Our nervous system, the most important part of us, does not acquire its full growth until we are 14 or 16 years old, and after that there is a long period when our growth all centers upon function and not upon size. Then for a long time our bodies go on growing, the brain getting its functional growth long after it has attained its maximum size and weight. Before the brain has got its growth in size and begins to