

as though their pupils had eyes that saw not, and ears that heard not, and noses that smelled not, and palates that tasted not, and skins that felt not, and muscles that would not work. They have insisted on taking the words out of nature's mouth and speaking for her. They have thought it derogatory to play a subordinate part to the object itself. Like Bottom in the play, they have wished to play all the leading parts, from the Lion's to Thisbe's, with what result I need not say. Now in object lessons and science lessons the teacher must be content with the humble duties of a demonstrator. He must let nature teach for herself, and content himself with arranging the order of her teaching, getting his pupils to ask her the right questions in the right sort of way, securing opportunities for her replies to be fairly heard, recording her answers in intelligible and accurate language, and registering them in convenient forms for remembering. Hitherto he has overshadowed both nature and his pupil; he must be taught by mental science to know his place. There is a good deal for him to do yet, but he will never do much as a teacher until he has disabused his mind of the error that he is *the* teacher. He is only one of a crowd of teachers, and in nature's school he must be content with the post of assistant. Yes, head master though he be, he must come down from his high stool and let nature take his place.

In order that children may interrogate nature for themselves specimens should, wherever it is possible, be placed before each child and opportunities should be afforded each child to experiment, care being taken to restrict observation and experiment to proper times. A single specimen held up before a large class is not enough; it can be observed only with the eye, and with that very imperfect-

ly. An experiment performed before a class is not enough; it should be repeated, either at the time or afterwards, by each pupil. It is only in personal intercourse that nature gives up her secrets. She never tells the whole of her mind through the medium of others. We must know her personally and consult her personally. We must experiment for ourselves as we observe for ourselves, and we shall learn as much through our failures as our successes. There is this further advantage in personal experiment—the truths learnt are wrought into our life history, and made part and parcel of ourselves. They are converted from objective into subjective truths. We forget the statements of books, but we rarely forget the teaching of experiments which we have ourselves performed.

My next point is, that you can rarely observe any object well without having some object with which to compare it. Mental science teaches us that all our knowledge is of resemblances and differences, that all we can say of any object is that it is like some other object or class of objects or unlike them. It follows that in all lessons of observation and experiment we must have materials for comparison. Now, when teachers give an object lesson or science lesson I often find that they provide themselves with specimens of the object, or with experiments directly bearing on the scientific truth to be established, but they forget the need of illustrations for comparison and contrast. If they are giving a lesson on the sparrow they think they have done all that can be reasonably expected from them in providing a sparrow, whereas they will want a dozen birds besides; one with a different build, another with a different beak, another with different wings, another with different tail, and so on. If they are giving a lecture on oxy-