

Always there is the thing perceived, the media, the contact, the machinery of the sensory nerves, and the gray matter of the brain. Defining education, then, as the process of receiving a series of sense-impressions and experiences, let us consider in what way our knowledge is affected by the limitation and imperfection of the senses.

We have said that, from the limitation and imperfection of our senses, but a section of the universe is opened to us; in reality, we have but a partial idea of even this section. It will occur to every one that there are a large number of objects which they fail to take cognizance of, although they could do so if they had the opportunity. Such objects as distant portions of the earth's surface, foreign animals and plants, many of us have to content ourselves without seeing. We know them through the senses of other persons, who have written on them. Nevertheless, our total conception of the world is affected by our personal ignorance of these matters which go to make up the world. But, aside from this class of objects, there are also to be considered the large number of things we pass over from inattention, and a want of preparation of the senses to entertain them. How large a class this is we can easily understand when we know that the difference between scientists and other people is involved in the matter. For a scientist is merely one who diligently observes things that for the most part are not seen nor heard nor felt by others. Life is also too short to witness the outcome of many things, and the years in which we are willing to pursue inquiry too few. It has happened that generations have elapsed before a new age has carried on seriously the investigations commenced at an earlier epoch.

When we examine the sources of

our knowledge, it will be found, I think, that we have attained it in two kinds of ways, and that for convenience and a better understanding of education itself, we may take these two ways as a rough classification of our knowledge itself. The one is by direct experimental contact with things, and this is the most positive and certain, so that we may call the knowledge we acquire in this way real. The other way is through books and the teaching of persons other than ourselves, and we may call this kind of knowledge second-hand. In the process of education we draw upon both these sources of information, and both go toward determining our total mental status. They are, in fact, so interlaced that we have difficulty in separating them. What we have read about often seems only to be separated from what we have experienced by its lesser vividness, and the art of teaching evidently lies in the power of presenting second-hand knowledge, so that it has the force, or nearly so, of an absolute sense presentation. Undoubtedly there is a certain ease and facility in acquiring second-hand knowledge, which renders the process attractive to the mind; the mind, which, as we have said, grows in the direction of receiving information. But this second-hand knowledge carries with it the greater possibility of error. We have only to recollect that our second-hand knowledge is imparted to us through the machinery of words, and words, we all feel, but approximately express our ideas. This fact supplies the reason for the success of object-teaching in education. Undoubtedly the second-hand information of today is not the best information now possible, but, as a whole, it compares favorably with the second-hand information of twenty years ago.

From the fact that the vast majority of us acquire our conceptions of