

which is called a sense. These are the senses of smell, taste, hearing, touch and sight. Each sense is limited to its own department of knowledge and has no connection with any other.—

3rd. When our senses are brought into relation to their appropriate objects, under normal conditions, a state of mind is created which we call hearing. So, if I open my eyes upon the external world, a state of mind is produced which we call seeing. This mental state is of two kinds. It is sometimes nothing more than a mere knowledge, as when my sense of smelling is excited by the perfume of a rose. At other times it goes further than this, and we not only have a knowledge of a now consciousness, but also the belief that there exists some external object by which this knowledge is produced. In the one case it is called a sensation, and in the other a perception. The external conditions on which these changes depend are as numerous as the senses themselves. Each sense has probably its own media, or conditions, through which alone its impressions are received. We see by means of the medium of light. We hear by means of the vibrations of air. None of these media can be used interchangeably. Each medium is appropriated to its peculiar organ.

4th. Physiologists have enabled us to trace with considerable accuracy several steps of the process by which the intercourse between the spiritual intellect and the natural world is maintained; by which impressions on our natural organization result in knowledge, and the volitions of the soul manifest themselves in action. A brief reference to our organization in this respect is here indispensable. The nervous system in general is that part of our physical organization, by which the mind holds intercourse with the external world, and through which it obtains the elements of knowledge. The nervous system is, however, of a twofold character. A part of it is employed in giving energy to those processes by which life is sustained, and the other is intimately connected with the thinking principle. The former we now dismiss from our consideration and proceed to say a few words on the latter. The organism which we use for this purpose consists of the brain and nerves. The part of the brain specially concerned in thought is the upper portion called the cerebrum. From the brain proceed two classes of nerves, which have been appropriately termed afferent and efferent. The afferent nerves connect the various organs of sense with the brain, and thus convey to it impressions from without. When an image from an external object is formed on the retina of the eye, a change is produced along the course of the optic nerve, which terminates in the brain, and the result is a change in the state of the mind which we call seeing. The other, or the efferent class of nerves, proceed from the brain outwardly and terminate in the muscles. By these the volitions of the mind are conveyed to our natural organs, and the will of the mind is accomplished in action. The process just now mentioned is here reversed. The volition of the mind acts upon the brain, the change is communicated through the nerves to the muscles, and terminates in external action. Thus the brain is the physical centre to which all impressions producing knowledge tend, and from which all volitions tending to action proceed. The proof of these truths is very simple. If the connection between the organ of sense and the brain be interrupted by cutting, tying or injuring the nerve, perception immediately ceases. If, in the same manner, the connection between the brain and the voluntary muscles be interrupted, the limbs do not obey the will. Sometimes, by disease, the nerves of feeling alone are paralyzed, and then, while the power of voluntary motion remains, the patient loses entirely the sense of touch

and will burn or scald himself without consciousness of injury. At other times, while the nerves of sensation are unaffected, the nerves of volition are paralyzed. In this case, feeling and the other senses are unimpaired, but the patient loses the power of locomotion. Sometimes an effect of this kind is produced by the mere pressure upon a nerve. These remarks respecting the nerves apply with somewhat increased emphasis to the brain. If by injury to the skull the brain becomes compressed, all intelligent connection between us and the external world ceases.—So long as the cause remains unremoved, the patient in such a case continues in a state of entire unconsciousness. The powers of volition and sensation are suspended. If the brain becomes inflamed, all mental action becomes intensely painful, the perceptions are false or exaggerated, and the volitions assume the violence of frenzy."

Such is an abridged view of the perceptive faculties in general—such is a brief statement of the facts involved in our intercourse with an external world. We know, for example, that in order to the existence of perception some change must be produced in the organ of sense; that this change must be transmitted by the nerves to the brain, and that the brain must be in a normal state in order to be affected by the change communicated; and that the result is a knowledge or an affection of the mind. But as to the mode by which this knowledge is conveyed to the immaterial part of our being, we are utterly at a loss to divine. I am satisfied that the lighting of effluvia on my olfactory nerves is in no respect like the state of my mind, which I call the sensation of smell, but as to the manner in which one event becomes the cause of the other, how any change in matter can produce thought or knowledge, is, and in all probability will continue to be, a profound secret. The various attempts made to explain it, the doctrine of representative images among the rest, now happily exploded, have but landed their advocates in universal scepticism, or furnished a foundation for consistent atheism. Surely it were better, vastly better, at once to acknowledge our ignorance, and, as finite creatures, implicitly bow to the determinations and arrangements of Infinite Wisdom.

But, though we do not pretend to explain the mode of the intercourse carried on between the world without and the world within, the facts themselves are abundantly plain, and amply sufficient for our purpose as educationists. If it is through the five senses that the perceptive faculty is awakened, that is, that those impressions made by external objects return to the mind in the absence of the objects and at long intervals after their removal—if it is through the medium of our perceptive faculties that we are brought into mysterious communion with external nature, and obtain our knowledge of God as manifested in his works, then it is clear that too much importance cannot be attached to these senses, or too much industry displayed in their improvement and cultivation. This perceptive faculty, however little it may have been considered in our educational schemes, is nevertheless conspicuously predominant during the first years of life. Whenever, for instance, any familiar object or person is recognized after an interval by a child; as when a brother, or sister, or nurse, after an absence, is greeted by a smile of familiarity and the arms are extended, it is manifest that he connects the now present object—not with the same object before seen,—but with that image of it which has been conserved by the mind. So soon, therefore, as an infant is observed to recognize any thing or person, and of which recognition it gives indubitable signs, so soon may we be sure that the perceptive