THE NEW AND THE OLD PHRENOLOGY.

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III.

Now, just as the fingers are joined to the brain, we must believe that the other organs are joined to it. Thus the eye sends in its thousands of little threads to one part of the brain surface, the ear to another, the nose and tongue to another. So that each of the organs of sense is related to a special region of the brain. And each of these regions receives messages from its own particular organ and from no other That is what is meant by the term localization of brain functions; namely, that *each power of sensation can be assigned to a location of its own*. This idea aids very materially our conception of the senses. The sense of sight, for example, cannot be thought of as dependent upon the eye alone, but upon the eye and the visual part of the brain surface, with their connecting threads. And, after all, we must admit that we do not really see with our eyes or hear with our ears. Why does your friend want to hurry through an art gallery, while you wish to look carefully at the paintings? You both see them with your eyes alike. Is it not because, behind the eye, there is something that is mental which enhances your enjoyment, and the lack of which prevents him from appreciating the beauties of art?

Go to a concert, and, as you come away, listen to the comments of people about you. One says that he was occupied chiefly in watching the gyrations of the man who plays the kettledrums. Another is indulging in raptures over the intricate counterpoint displayed in the orchestration of the symphony. You have enjoyed the music without having noticed the counterpoint at all. And yet you and the other two have heard equally well, so far as the actual hearing goes. But how differently you have really heard! It has been the reception of the sounds in the brain, rather than in the ear, the appreciation of their meaning, the ideas awakened by the sensations there, which has determined this difference. You see and hear with the brain, and not with the eye or ear.

Or take another function of the brain, that of voluntary movement. You may be fairly skilful and graceful; you may have learned to write a good hand, or to play on the piano; you may even have succeeded in acquiring the power to speak foreign languages with the ease and fluency with which you use your own. But this is not the limit to the knowledge of movement. There are many new motions which you might acquire. For example, the steps of new dances, the peculiar fingering of the violin or other musical instrument, or some one of the innumerable fine adjustments of motion which you see made with such rapidity by any one of fifty different operatives in every factory in the land. All these are movements of adaptation and adjustment, first studied by the aid of sight and then imitated by the aid of muscular sense, or the sense of movement, and finally acquired by practice till they can be executed with dexterity. It is not the fingers or the muscles which have learned the movements. It is the brain which, in its motor area, has received the sensation of movement, has retained a memory, and then combined the memories into new forms of motion, so as to direct and guide the hand which carries them out. And so, though we all have hands and arms, there are some who use them deftly and are skilful, and there are others who will always be hopelessly clumsy and awkward. And the difference lies in the brain, in the part called the motor area.

Where are the various areas? They can be shown by the aid of diagrams representing the brain surface. In the middle lies the Motor area [corresponding somewhat in position with Firmness, Veneration, Conscientiousness, Hope and Sublimity on the old phrenological charts]; and it is interesting to know that on the left half of the brain, which guides the right hand, it is larger in extent than on the other side, which controls the left hand, beause the majority of fine movements are performed by the right hand, and have to be learned by the left brain. The reverse is true of left-handed people.

At the extreme back is the visual area, which receives impressions from the eye. [This about corresponds with Inhabitiveness on the old phrenological chart.] In the lower part of the side the auditory area is situated [corresponding with Secretiveness, etc.], where impressions from the ear are received. On the under surface, and in front of the auditory, the senses of taste and smell are located [corresponding about with Mirthfulness Time, and Tune]. Touch, which includes the senses of location and movement, as well as those of temperature and pain, is assigned to the same area as that of motion, but extends a litt'e farther back, and this overlapping of the two is not strange when we consider that our motions are guided by touch; think how differently you lift a heavy lamp or a fine bit of cotton-wool, and you will understand how your grasp is guided by touch. These are the areas which are thus far discovered; but our knowledge of the brain is by no means complete, for on this African map there are large regions of undiscovered country. Fortunately, several Stanleys are on the way.

Let us now, accepting this theory of the localization of the functions in the brain, go on to see how much it reveals to us regarding the process of thinking.

Although a part of our thinking is done by the aid of language, the greater part of it is carried on without the consciousness of actual words. Mental images are constantly passing through the mind, one crowding upon another; and it is only when we need to tell some one else about them that we use language. Call up to your mind for a moment the place in which you passed last summer, and already there has appeared a series of mental images of places and people, of scenes and events, each following the other with amazing rapidity, but in silent succession. Max Muller would have us believe that thought without words is impossible, and he even attempts to trace the development of thought by studying the growth of language. ("Science of Thought.") But many authorities, scientific and philosophical, teach the contrary; and, rather than accept his position, one is tempted to undermine it by advancing the opinion that few men think as the student of words does.

If we think, then, largely by means of mental images, it may be worth-while to study the structure of a mental image. When you examine a flower, you perceive its graceful shape and form, its exquisite color, its delicate fragrance, and its soft, velvety feel. You say it is called a rose, but—

> "What's in a name? That which we call a rose
> By any other name would smell as sweet."

So that, without its name, you have a mental image of it, which is made up of several distinct sensations. These are—

The visual image—the sensations of the rose as it appears to the eye;

The olfactory image—the sensation as it reaches the nose; and

The tactile image—the sensations of its touch, its shape, its softness.