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many automations.
the afferent excitator
on habit or from
creature's nature
and from all control
of the creature
at control over it.
in the same theory.
in this chapter,
in or through the
performed by the
s free to attend to
unconscious soul.
body), physiological

8. Furthermore, these fine fibres must again separate themselves on reaching the centres, so as to allow of the soul acting on the end of the one without disturbing the other. Then, when separating thus, these fine fibres must also place their ends at the centres (in the gray cellular matter), at distances and in relations corresponding to the distances and the relations which they sustain to one another at the other end. The necessity of this will be seen by the following examples. We all know that it cannot be the picture in the retina of the eye that is immediately seen by the soul, but the picture at the other end of the optic nerve in the cerebrum; and yet the picture in the cerebrum must be the same as the picture in the retina. If, in the picture in the retina, there is the image of two flies one-sixteenth of an inch apart, and also of two flies twice that distance apart, it is evident that, in the picture in the cerebrum, the distance between the two latter will be still twice that which is between the two former; consequently the nerve fibres which conduct the images of the two flies that are furthest apart in the retina must also terminate furthest apart in the cerebrum.

Again, if I should lay the palm of my hand on the top of a small square box, did not the relations of the nerve fibres at the centre of consciousness correspond in some manner to their relations in the palm of my hand, I should be unable to tell whether this box was square, round, or irregular; and if I should wish to press down the lid at one corner, how should I be able to direct volitional motion to that point of the palm, did not the volitional nerve ends in my cerebrum in some manner correspond, in their relations, to their relations in the palm of my hand? The nerve fibres at the four corners of the box in the palm must also, so to speak, come to the four corners at the cerebrum. The nerve fibres at the four corners of a box in an image in the retina of the eye must also be the ones which, so to speak, are found at the four corners in an image in the cerebrum; and if I wish to pay particular attention to one corner of the box, I must have a corresponding volitional fibre in the cerebrum, which will enable me to adjust the retina so as to make that corner the centre of vision.

4. The foregoing statements, as already affirmed, apply to both kinds of nerves—both those which bring sensations or impressions to the centres and those which transmit volitional and involuntary motions from them. They apply to the nerves of both parts of the soul (conscious and unconscious), but in a special manner to those of the conscious connecting with the cerebrum. As the unconscious soul acts by an unconscious instinct, and the motions are perhaps simpler; the nerve ends may therefore be fewer in number, and arranged in relations less corresponding to their ends at the exterior, than are required at the cerebrum, where they are acted on by consciousness.

It is also important to notice, that the nerve connections of the unconscious centres, which are passed by cerebral lines, and attached thereto by short connecting fibres, are no exception to the rule. These connecting fibres must have continuity through the cerebral lines to the exterior, and be also spread in sufficient numbers at these centres to represent properly the parts at the exterior.

It is evident that as it would not do to have impressions coming from different points of the body, confused and mixed up together at the centres; so neither would it do to have different volitional or involuntary motions coming from the centres, mixed up together, confused, or failing to reach the particular parts of the body which are intended. If I wish to move my forefinger, I must move only the nerve fibre of the bundle which connects with it.

The degree of nerve complication, the number of fibres, and the correspondence of relation in the fibre ends at the centres, will necessarily vary according to the kind of work performed by each set of nerves, and that kind of soul centre with which they are connected.

We have now to show that the foregoing theory of this chapter with respect to nerve lines is in harmony with physiological facts, and hardly assumes a principle that has not already been discovered to exist. That the nerve lines are made up of bundles of very fine fibres (most of which are so very fine as to be indistinguishable to the naked eye), and that these fibres spread in the muscles or extremities, and, coming together, pass through the body in bundles or in sheaths, are facts now so well known that the quotation of physiological testimony in proof thereof is altogether superfluous. Respecting the continuity of every individual fibre of these nerve lines, from its point of location in the muscles or extremities of the body to its termination in a centre, Dr. Carpenter says: "Each fibre appears to maintain its continuity uninterruptedly from its origin to its termination without any union with other fibres, though bound up closely with them in the same nerve trunk; and there is strong reason to believe, that the white substance of Schwan serves as an insulator, whereby the axes or cylinders of the contiguous nerve fibres are kept apart from one another, just as are the numerous wires, each having its own origin and termination, which are bound up together in the aerial cable of the district telegraph." It is found that if even one fine fibre connecting with a nerve line be severed in any part of its course, the soul immediately loses all power of sensation or of motion over that point of the body with which it connects; this fact shows that the soul must have had distinct communication through that particular fibre.