

CHAPTER III.

THE PHYSICAL BASIS OF MIND.

WE have already taken it for granted that Mind has a physical basis in the functions of the nervous system, or that every mental process has a corresponding equivalent in some neural process. I shall next endeavour to show how precise this equivalency is.

We have seen that ganglionic action consists of waves of nervous tremours originating in the cells, coursing along the attached fibres to other cells, and there arousing fresh impulses of the same kind. Moreover, we have seen that this coursing of nervous impulses through nervous arcs is not, as it were, promiscuous, but that, owing to the anatomical plan of a ganglion, it takes place in certain determinate directions, so that the result, when expressed in muscular movement, shows the function of a ganglion to be that of centralizing nervous action, or of directing nervous tremours into definite channels. Lastly, we have seen that this directing or centralizing function of ganglia has probably in all cases been due to the principle of use combined with that of natural selection. Now it is known from experiments on the lower animals, as well as from the effects of cerebral disease in man, that the part of the nervous system in all the Vertebrata which appears to be exclusively concerned in all mental operations, is the so-called "large brain," or cerebral hemispheres. This is the convoluted part of the brain which appears immediately below the skull, and is above all the series of ganglia or nerve-centres which occupy the rest of the cerebro-spinal tract. As some at least of the bewildering multitude of cells and fibres which constitute the cerebral hemispheres are in connection with these lower ganglia, there is no doubt that the hemispheres are able to "play down" upon these ganglia as upon so many mechanisms, whose function it is to throw