

Such is the rate at which a nerve-centre conducts its operations when no consciousness or volition is involved. But when consciousness and volition are involved, or when the cerebral hemispheres are called into play, the time required is considerably greater. For the operations on the part of the hemispheres which are comprised in perceiving a simple sensation (such as an electrical shock) and the volitional act of signalling the perception, cannot be performed in less than $\frac{1}{12}$ of a second, which is nearly twice as long as the time required by the lower nerve-centres for the performance of a reflex action. Other experiments prove that the more complex an act of perception, the more time is required for its performance. Thus, when the experiment is made to consist, not merely in signalling a perception, but in signalling one of two or more perceptions (such as an electrical shock on one or other of the two hands, which of five letters is suddenly exposed to view, &c.), a longer time is required for the more complex process of distinguishing which of the two or more expected stimuli is perceived, and in determining which of the appropriate signals to make in response. The time consumed by the cerebral hemispheres in meeting a 'dilemma' of this kind is from $\frac{1}{5}$ to $\frac{1}{20}$ of a second longer than that which they consume in the case of a simpler perception. Therefore, whenever mental operations are concerned, a relatively much greater time is required for a nerve-centre to perform its adjustments than when a