

testimony, such observations were almost useless in general mental theory. With the positive work now done in Psychometry, it is quite astonishing how many side lights are thrown on other questions and to what unexpected uses time determinations may be put.

Proceeding upon the assumption already made and established in Psycho-physics, we observe that any period of time which is occupied jointly by a physiological and a mental process, and which may be recorded by physiological movements on a time-registering apparatus, will involve as one of its factors the time of the mental process considered for itself. If then we have means of measuring the time taken by the physiological process alone, we may by subtraction find means of reaching the mental time. Now these conditions are realized in every instance in which we perform a movement in response or reaction to a sensation from without. For example, suppose I hear a word and then write it; the sensation of sound is the central link in a chain of nervous processes beginning in the ear and ending in the hand. From the ear the stimulus is transmitted to the brain, and from the brain the command to move is carried to the hand; between these two processes, the third or mental fact, sensation and volition, has taken place. Now such a chain of events involving any two sensations, and a conscious event connecting them is called a "simple reaction," and the time that it takes the "simple reaction time." The determination of this time is the first problem of Psychometry.

The simple reaction time is determined for any sense with its reaction in movement (for example a sound and consequent movement of the right hand) by connecting the hand movement with a very delicate clock (chronoscope or chronograph) in such a way that there is an instantaneous stoppage of the clock upon the movement of the hand. This is arranged by directing the person experimented upon to press an electric button when he hears a signal (say a bell stroke). Now let the bell stroke emanate from the clock as it reaches a certain indication upon its dial—and our experiment is ready for trial.