

intensity to produce a sensation or not. The feeblest sensation which we are able to experience or feel from any sense is called the *perceptible minimum*; the theoretical point at which such a sensation, when further enfeebled, disappears from consciousness, the *threshold of sensation*; and the amount of excitation which is just sufficient for the perceptible minimum of sensation, the *threshold excitation* for that sense. For example, air vibrations are the excitation for sensations of sound, the feeblest sound which it is possible to hear under determined conditions, is the perceptible minimum, and the number of units agreed upon—bells, notes, etc.,—which are needed to produce this perceptible minimum makes the threshold excitation for this sense. Further, the amount of excitation needed to raise or lower the intensity of a sensation by the smallest amount which can be distinguished and the corresponding difference in the sensation, are called the *smallest perceptible difference* in excitation and sensation respectively. Thus, if 1 unit be the threshold excitation for sound and an addition of $\frac{1}{3}$ unit is necessary to produce any perceptible increase in the sensation, then $\frac{1}{3}$ is the smallest perceptible difference of excitation for sound.

With these definitions in mind, we may turn to the problem of finding a law of measurement for intensities of sensation. The preliminary question as to a standard of measurement is already answered in the resort to experiment, viz., the standard must be a scale of excitation values, determined by physical measurement, as pounds, velocities, etc., etc. Given a threshold value of each excitation, we may double, treble, it, endeavouring to find some law of increase in the corresponding sensations whereby a corresponding internal scale may be erected. The first step is seen, therefore, to be the discovery of the perceptible minimum of each sense, which may serve as zero point on the sensation scale, its exciting stimulus being the unit point on the excitation scale. This brings the investigator to an actual research on all the sense organs in turn—experiments to determine the minimum of sight, hearing, touch, etc. The methods by