increase of ⅓ would be in one case an absolute increase of 2 and in the other of 3 grammes.

There are three general methods of determining the smallest perceptible difference for any sense, due in their formal statement and description to Fechner. I will state these methods briefly in view of their importance in any work of this kind. They are known as the methods, 1. of *smallest perceptible differences*, 2. of *true and false cases*, and 3. of *mean errors*. There is a fourth, of especial importance in researches on sight: that of *mean gradations* (Plateau); but it is not necessary to speak of it farther.

1. *The method of smallest perceptible differences* is most direct. It consists in adding to a given excitation until the difference is barely perceived. The difference between the initial and the resulting excitation is the first determination of the quantity required. A plainly-perceived difference is then added to the same initial excitation, and reduced till no longer perceived. This gives a second determination. The averaging of these two results is the correct value, which we will call DE, (difference or differential of excitation). Its ratio to the first excitation is expressed by the fraction $\frac{E}{DE}$. The relative degree of sensibility for any sense, it will be observed, is inversely proportional to the amount of excitation required to give the smallest perceptible difference in sensation, *i.e.*,

$$S\ (\text{sensibility}) = \frac{DE}{E}.$$

2. *The method of true and false cases* consists in comparing two excitations (say weights), the subject of the experiment judging them to be equal or not. The number of true and false judgments is recorded and the ratio between them indicates the approach of the difference of excitation to its minimum value. The relative sensibility again varies as the actual difference between the excitations varies, and also directly as the number of true judgments (in relation to total cases), *i.e.*,