if the amount of acid be ten times the amount of salt $\left(\frac{HA}{BA} = 10\right)$, the hydrogen ion concentration must be 0.000003 N, and if the reverse be the case $\left(\frac{HA}{BA} = \frac{1}{10}\right)$ the value must be 0.00000003 N.

The range of variation of concentration of hydrogen ions in the usual solutions of the chemical laboratory considerably surpasses the limits 1.0 N and 0.00000000000001 N. In comparison with such enormous differences those between 0.000003 N and 0.00000003 N are almost negligible $\left(\frac{1}{100} : \frac{1}{100,000,000,000,000}\right)$. Hence ordinarily it is quite accurate enough to speak of any solution containing both free carbonic acid and a bicarbonate, when the disparity between the concentrations of the two substances is not very great, as of constant neutral reaction. For, obviously, the neutral point, which at a temperature of 25° amounts to a concentration of hydrogen and hydroxyl ions 0.0000001 N, falls well within the narrow range of reaction of such solutions, being characterized by a ratio of carbonic acid to bicarbonate of about 1 : 3.

Thus carbonic acid, like the almost equally weak acids sulphuretted hydrogen and phos-