

ment and the conditions within the organism alike, that this is necessarily the case. However, the less conspicuous substance is not without its physical fitnesses, and we must now turn to them.

## I

### SOLUBILITY

The most obvious of the properties of carbonic acid is its all-pervasiveness. Originally formed in vast quantities by the cosmic process, and accumulated in the atmosphere, the store has been steadily replenished there by vulcanism. It is probable that of the enormous quantities now deposited as limestone in the earth's crust, a quantity sufficient to yield an atmospheric pressure greater tenfold than the present atmospheric pressure, only a fraction was at any one time actually gaseous. For it happens that the presence of carbonic acid in the atmosphere insures the occurrence of greater, or at least nearly equal, quantities in the ocean and in all the natural waters of the earth. This is due to the solubility of carbon dioxide, to the magnitude of its absorption coefficient in water.

The absorption coefficient is the volume of gas absorbed by one liter of liquid when