

in depths from three inches to three feet, between the middle of December and the middle of April. The greatest velocity of the wind during north-east autumn and winter storms is about 60 miles per hour.

CORROSION.

Corrosion is most active in autumn and winter, because there is then more moisture deposited upon the metal, and the water contains a larger proportion of oxygen and carbonic acid.

At 32° F. water will absorb	4.9%	of its own bulk of oxygen.
At 50° F.	" 3.8%	" " "
At 68° F.	" 3.1%	" " "

Snow water contains more oxygen than rain or river water and will rust metal quicker. Cold water dissolves more carbon dioxide than warmer water. At 32° F. water will dissolve 1.8 volumes of carbon dioxide, and at 60° F. only one-half as much. Pure rain-water contains $\frac{1}{2}$ volumes of air in 100 volumes of water. If water is freed from oxygen by boiling, iron will not rust in it, nor will it rust in perfectly dry air. Rust consists of iron, oxygen and water and it requires a simultaneous action of oxygen and water to produce it. Damp oxygen and damp carbon dioxide in combination produce rust quickly. Neither will do so when dry either together or separately, and only to a very slight extent when damp, separately. It requires the combination of both, damp, to rust quickly.

Steel, when unprotected and exposed to the weather and seawater, corrodes at the rate of $\frac{1}{82}$ of an inch per year or 1 inch in 82 years.

Wrought-iron, under same conditions, corrodes at the rate of $\frac{1}{150}$ of an inch per year or 1 inch in 150 years.

Steel, unprotected and exposed to the weather and fresh water, corrodes at the rate of $\frac{1}{170}$ of an inch per year or 1 inch in 170 years.