that for the ordinary temperature of the earth's waters, where they are in contact with carbonic acid gas, it is very close indeed to 1.0. Hence, when water is in contact with air, and equilibrium has been established, the amount of free carbonic acid in the water is almost exactly equal to the amount in the air. Unlike oxygen, hydrogen, and nitrogen, carbonic acid enters water freely; unlike sulphurous oxide and ammonia, it escapes freely from water. Thus the waters can never wash carbonic acid out of the air, nor the air keep it from the waters. It is the one substance which thus, in considerable quantities relative to its total amount, everywhere accompanies water.[1] In earth, air, fire, and water alike these two substances are always associated.

Accordingly, if water be the first primary constituent of the environment, carbonic acid is inevitably the second, — because of its solubility possessing an equal mobility with water, because of the reservoir of the atmosphere never to be depleted by chemical

[1] "Carbonic acid being more soluble than the other gases, is contained in rain water in proportions between 30 and 40 times greater than in the atmosphere." — GEIKIE, "Text-book of Geology." 4th ed., Vol. I, p. 449, 1903.

It must not be forgotten that carbonic acid in subterranean water, by which so much geological change is accomplished, originates, not in the air, but from organic matter in the soil.