

chief impurities in vitiated air. It also seriously interrupts or interferes with the exhalation from the skin and lungs. When excessive moisture is associated with high temperature, we are cognizant of an oppressive and sultry feeling, and an enervation of mental and bodily vigour; with low temperature it is conducive to a damp, penetrating chilliness, which seems to search us through and through. Coughs, colds and rheumatic troubles are common when this state of atmosphere prevails. When the air is too dry, the mucous membrane of the mouth, pharynx and nostrils become parched, and the use of the voice impaired or impossible. A general irritability of the system is a common result of too dry an atmosphere.

CARBONIC ACID.

Carbonic acid gas, until quite lately, has been regarded not only as the chief impurity, but as the only impurity of vitiated air, and the one constituent that it is necessary to determine when examining an air for hygienic purposes. Important as it is that carbonic acid should not be allowed to exceed a certain amount in an air we breathe, we now know also how detrimental organic matter is, and that we must look upon it as probably the much more dangerous to health of the two. Carbonic acid is always present in the atmosphere. Over the sea, on mountains and moors, and in localities far from contaminating sources, it varies from .03 to .04 per cent. by volume. It is the result of the union of carbon (or charcoal) with oxygen. It is formed in the process of combustion, in the respiration of animals, and by decay or putrefaction of organic matter in the air. The chemistry, as far as the result is concerned, is precisely the same in all of these. The burning of wood, coal or other material rich in carbon and hydrogen, is accompanied by the development of heat and light. This is what is commonly understood as combustion. The products are carbonic acid gas, and water. By estimating their amounts, the chemist can tell how much carbon and hydrogen the burnt material contained. And again, knowing the weights of carbon and hydrogen in a substance, the heat that will be generated by their combustion can be calculated with accuracy, since in their union with oxygen they always produce for a known weight a certain amount of heat.