

under similar conditions by several viruses and bacteria, some of which had been kept in dry state for a period of years. In many instances, particularly in the case of fresh tissue emulsions and of bacteria dried over H_2SO_4 for 24 hours, CO_2 production could be detected 2 to 3 hours after placing minute amounts (0.001 gm.) of material in the apparatus.

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Blood reaction and respiration.

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Experimental and clinical observations indicate that when the respiratory mechanism is normal, increase in alkaline reserve is only partially compensated by increase in CO_2 tension, so that increase in pH also occurs. In the same way decrease in alkaline reserve is accompanied by decrease in pH. There is a decrease in CO_2 tension but not sufficient to prevent pH change. The usual percentage change in hydrion concentration is about twice that in CO_2 tension. The arterial CO_2 tension is kept normally between 35 to 45 mm., which is a much narrower range than would be necessitated for the maintenance of normal pH. The conception of the CO_2 tension as a factor physiologically important only from its relationship to blood pH is not consistent with these facts. When conditions force the organism to choose between change in CO_2 tension and change in pH it tends to compromise between the two, and acts in a manner to indicate that maintenance of normal CO_2 tension is in itself an important factor.