



FIG. 1. The pH of circulating blood during a short period of rebreathing. Dog, male, 10 Kg. Na Amytal anesthesia, Heparin intravenously. Animal made to rebreathe by placing a surgical rubber glove over the snout. Time divisions, 5 sec.; pH units at left.

illustrating the type of information obtainable. In this experiment the electrode system was placed in the femoral artery of a heparinized dog, under sodium amyral anesthesia, and the animal was made to rebreathe its expired air for a period of 88 seconds, as indicated by the solid black line in the figure. Within 8 seconds after rebreathing was initiated, the blood began to shift to the more acid side; in 40 seconds this change amounted to 0.08 pH unit; in the remaining period, the change was 0.03 pH unit more. Five seconds after cessation of the rebreathing, the blood became with surprising rapidity less acid, passing through its original level in less than 15 seconds after the reversal began. Its new level was not attained directly, but by a process of "over-shooting" and subsequent return from a slightly higher pH. The return to a stable condition required a minute or more.

Complete details of this technique, as well as the results of other experiments on the relationship of blood pH and respiration, will be published later.

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