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Changes in blood alkalinity during digestion.

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It has been noticed by former observers that the alveolar carbon dioxide tension usually rises after a meal. Two diametrically opposite explanations have been possible: (1) *Acid* digestion products displace carbon dioxide from the blood, and during the displacement the rate at which carbon dioxide passes from blood to lungs is increased. (2) The blood becomes more *alkaline*, as the result of secretion of gastric hydrochloric acid, or absorption of alkaline digestion products. Consequently the carbon dioxide capacity of the blood is increased, and in equilibrium with it the carbon dioxide tension of the alveolar air rises.

We have determined on each of a number of subjects, in conditions of approximate digestive rest and of digestive activity, the following data: (1) Alveolar carbon dioxide tension; (2) Alkaline reserve of the plasma as indicated by its ability to maintain its alkalinity after addition of acid; (3) Alkaline reserve of the plasma as indicated by the amount of carbon dioxide with which it can combine. The results show that the reserve alkalinity of the plasma *increases* during digestion, the alveolar carbon dioxide increasing simultaneously. The second of the above explanations is therefore correct. The cause of the increase in alkaline reserve is being further studied.