Whenever the carbonate ion activity was decreased there was an increased response of the uterus to pituitrin. This occurred whether the carbonate ion activity was decreased (a) by decreasing the bicarbonate ion activity and CO_2 tension proportionately without change in pH; (b) by decreasing the bicarbonate without change in CO_2 tension thereby lowering the pH; or (c) by increasing only the CO_2 tension which also resulted in a decreased pH.

When the carbonate ion activity was kept as constant as experimental technique permitted, there was either no change in response or a slight change which might at times be positive and at other times negative. This occurred regardless of whether the bicarbonate was doubled, the CO_2 tension quadrupled and the resulting pH decreased, or the bicarbonate was halved, the CO_2 tension quartered and the resulting pH increased.

The calcium ion activity was the same in all solutions.

3590

Influence of "Effective Temperature" Upon Bactericidal Action of Gastro-Intestinal Tract.

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We have previously shown the effects of acid and alkaline buffered substances fed by mouth upon the bactericidal action of the gastro-intestinal tract.[1] We explained these differences upon the variations in the H-ion concentration of the material in the upper half of the small intestine. When there was a predominance of acid or acid buffered substances in the lumen of this part of the tract, there was an auto-disinfection of the exogenous bacterial flora. When there was a predominance of alkaline buffered substances in the upper part of the small intestine, there was a loss of this power to kill bacteria.

We wished to use certain methods of changing in external environment to influence gastro-intestinal function and study the same bactericidal mechanism under these conditions. Bread was soaked in cooked meat broth and fed to dogs kept in rooms at ordinary and warmer temperatures. Prodigiosus was added to the food before feeding. Temperature in the cool room was 50° F., the relative humidity was 40 per cent. The warm room was 98° F. and 70 per

cent relative humidity. The "effective temperature" in this instance was 91°.[2] We have used several effective temperature zones, but for brevity wish to report a typical middle zone of effective temperature in this paper. Each dog reacted differently in maintaining his internal temperature. Some dogs even in the above temperature environments did not have a rise in rectal temperature, while others had a rise of 4° F. Drinking water was always kept in the room for the dogs.

TABLE I.

The per cent of bacteria fed by mouth appearing in the caecum in relation to the time of ingestion. Four dogs at cool and warm room temperatures.

	Cool Room				Warm Room			
Time after feeding	A	D	Br	Bl	A	D	Br	Bl
0	0	0	0	0	0	0	0	0
½ hr.	0	0	0	0	0	0	50%	0
1 hr.	0	0	0	0	0	0	100%	0
1½ hrs.	0	0	0	5%	0	15%	75	0
2 hrs.	0	0	0	30%	5%	25	75	0
2½ hrs.	0	0	0	30%	5%	40	100	75
3 hrs.	0	0	15%	0	10%	10	100	75
4 hrs.	0	0	0	0	40	25	100	75
5 hrs.	0	0	20%	0	25	0	100	75
6 hrs.	0	0	0	0	30	0	100	75
7 hrs.	0	0	30%	0	25	0	100	50

Table I gives the results of a typical experiment illustrating differences in the bacterial killing power of gastro-intestinal tract of the same dogs upon the same diet in the cool and warm rooms.

This is a preliminary report.

[1] Arnold, L., and Brody, L., *Am. J. Hygiene*, 1926, vi, 672.

[2] Houghten, F. C., and Yagloglou, C. P., *J. Am. Soc. Heat. and Vent. Eng.*, 1923, xxix, 165, 515.

3591

Susceptibility of Gastro-Intestinal Tract to Irritating Action of Salmonella Group of Food-Poisoning Bacteria.

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There is a bactericidal mechanism in the small intestine that causes the destruction of bacteria injected directly into the duodenum, or that pass through the stomach into the intestine.[1, 2, 3, 4] Savage and