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.

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

LLOYD ARNOLD AND CHARLOTTE SINGER.

From the Department of Bacteriology, University of Illinois.

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

White[5] have shown that certain types of "food-poisonings" can be caused by heat-stable toxic substances in *B. enteritidis* infected food material. Young dogs (3 to 6 months old) were fed meat and bread. The meat was ground up and mixed with equal amount of 1 per cent NaCl solution, autoclaved. Some samples were mixed with bread to proper consistency and fed as controls. *B. enteritidis* (5 strains obtained from Prof. E. O. Jordan) was inoculated in some of these meat flasks, incubated 24 hours, and stood at room temperature for 5 to 7 days before being mixed with bread and fed to the dogs. In the third experiment, the same *B. enteritidis* infected meat was placed in the boiling water for 45 minutes, bread added and fed as in other experiments. All food was warmed to 30° to 35° C. before feeding.

Cool or ordinary temperature room was 50° F. and 40 per cent

TABLE I.

Gastric acidity of dogs 2½ hours after feeding meat and bread in cool and warm rooms.

	Cool Room Temp. 50°, H. 40% *Acidity*		Warm Room Temp. 98°, H. 70% *Acidity*	
	Free	Combined	Free	Combined
Plain meat and bread 12 young dogs	0	120	0	57
Enteritidis infected meat and bread 14 young dogs	0	95	0	35
Heated enteritidis infected meat and bread 18 young dogs	0	90	0	18

TABLE II.

Distribution of *B. prodigiosus* through gastro-intestinal in percentage of amount fed to dogs.

Meat with bread	Before feeding	Stomach	Duodenum	Upper jejunum	Lower jejunum	Ileum	Cecum
T. 50, H. 40 Plain	100%	0	0	0	0	0	0
T. 50, H. 40 Enteritidis	100%	0	0	0	0	10%	10%
T. 50, H. 40 Heated enteritidis	100%	0	0	0	25%	35%	35%
T. 98, H. 70 Plain	100%	15%	15%	25%	35%	100%	100%
T. 98, H. 70 Enteritidis	100%	15%	25%	25%	50%	100%	100%
T. 98, H. 70 Heated enteritidis	100%	100%	100%	100%	100%	100%	100%

relative humidity. Warm room was 98° F. and 70 per cent relative humidity; effective temperature was 91°. Windows and doors in both rooms were closed. Table I gives the results of gastric analysis on 44 dogs fed with the three above mentioned mixtures. These were acute experiments, dogs anesthetized 2½ hours after feeding.

Table II shows the relative distribution of *B. prodigiosus* in the gastro-intestinal tract 2½ hours after ingestion under the same conditions as the previous experiment. Six young dogs 4 months old of the same litter were used. Relation distribution is expressed in percentage of the original dose of the chromogenic bacteria.[3] All of the dogs fed heated *B. enteritidis* infected meat in the hot room vomited one or more times and acted as if they were sick. A few of the dogs given the unheated living *B. enteritidis* infected meat vomited. This was not the rule and the amount vomited was always small. The cool room dogs never vomited with any of the above food mixtures.

We have used a small number of kittens (6) and have found the same changes as have been described for the young dogs. Average temperature of dogs was 101.2, in warm room. There was an average elevation of rectal temperature to 104° F.

These results confirm our previous findings and substantiate the experimental work reported by Savage and his colleagues. There is a toxic substance present in the *B. enteritides* infected meat that acts as a gastric irritant and causes a diminution in the secretion of acid. This substance is heat stable and as Savage[5] reports, the toxicity is increased by heating. This is accompanied by an inhibition of the normal bactericidal mechanism of the intestinal tract.

This is a preliminary report.

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[1] Arnold, L., *J. Inf. Dis.*, 1926.

[2] Arnold, L., and Brody, L., *J. Inf. Dis.*, 1926.

[3] Arnold, L., and Brody, L., *Am. J. Hyg.*, 1926.

[4] Arnold, L., *Klin. Wochschr.*, 1927.

[5] Savage, W. G., and White, P. B., *Med. Res. Council Spl. Rep.*, No. 92, 1925.