The results are shown on the accompanying graph. The abscissa represents the time from the beginning of the experiment, the ordinates, temperature in centigrade. The straight lines represent the temperature of the muscle, the dotted line temperature of the blood in the abdominal aorta and the broken line temperature in the rectum. The perpendicular lines show the time of injection of the bacterial suspensions.

Graph represents an average of the results of experiments on 5 dogs. The temperature in the abdominal aorta and in the rectum gradually rises, while the muscle temperature falls after each injection of *B. coli* suspension.

The results, as observed in our experiments, substantiate the findings of Petersen and Müller.[1] During the visible bacterial chill there is a rise in the body temperature, as shown by temperature recordings in the abdominal aorta and rectum, but this temperature is not generated in the muscles. On the contrary, the muscular temperature falls. Of course, with time the muscle temperature rises after the readjustment of the splanchno peripheral balance, but at least not in the beginning of a visible chill.

The muscular tremor which was observed during the bacterial chill is not accompanied with an increase of the temperature in the skeletal muscles, so this muscular activity is of a different type than the one we have in ordinary muscular work, which is accompanied by production of heat.

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Temperature Changes in Gastrointestinal Tract in Relation to Heat and Cold on Skin.

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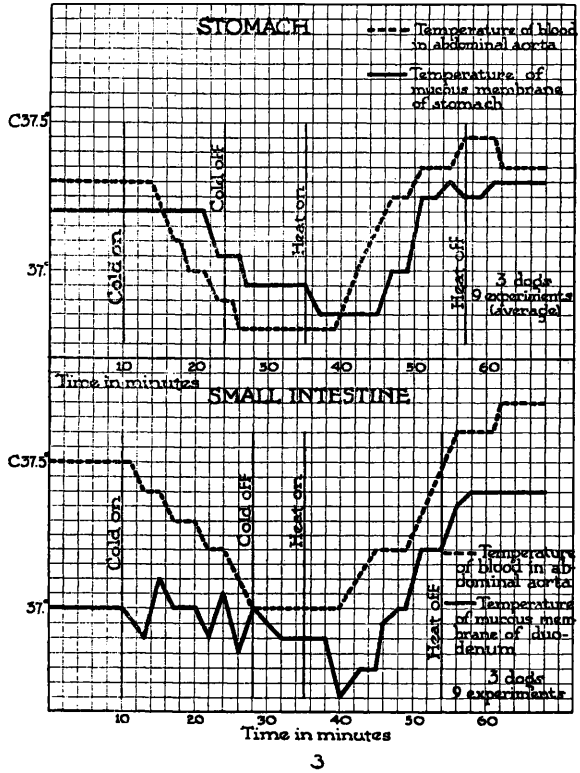
For our temperature readings of a mucous membrane of gastrointestinal tract we used a Queen's potentiometer.

Ten dogs were used. Under nembutal anesthesia, the abdomen was opened and an opening in the stomach or intestine was made. For measurements of temperature of mucous membrane of the stomach the ends of 3 thermocouples (devised by Bachem), covered

with shellac and embedded in celloidin, were introduced into the stomach and fastened to the inner surface by a ligature. For recording the temperature of the mucous membrane of the intestine the 3 thermocouples mounted on a piece of a rubber tubing of suitable diameter, and fastened with a rubber band were introduced into the intestine (duodenum). For measuring the temperature of the rectum the thermocouples were introduced through the anus. Heparin was injected intravenously (10 mg. per kilo), the femoral artery opened and a long glass thermometer introduced through it into the abdominal aorta. Ice packs and hot moist towels were applied to the skin of the chest of dogs.

The results are shown on the accompanying graphs. The abscissa represents the time from the beginning of the experiment, the ordinates—temperature in centigrade. Dotted lines represent the findings of the temperature in the abdominal aorta, the straight line—the temperature of the surface of the mucous membranes. The perpendicular lines show the time of application of cold and heat to the body surface of the dog.



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The application of cold or heat to the skin causes a gradual fall or rise of the temperature of the blood in the aorta. The same change is observed on the mucous membrane of the stomach with the exception that the fall of temperature here after application of cold is delayed and application of heat evokes the rise later than in the aorta.

In the mucous membrane of the duodenum and of the central part of the rectum there is also a tendency to a delayed response of the mucous membrane in fall or rise of its temperature on the application of cold or heat to the skin. This decline and elevation of temperature is irregular, that is in a wavelike manner.

The temperature of the mucous membrane of rectum near the anus shows a delayed response in the lowering of its temperature after application of cold to the skin (in comparison with the temperature in aorta), but in addition it also shows a difference in recovery after the application of heat. The recovery is delayed.