experiments were obtained from meat which was inoculated after autoclaving at 15 pounds for 15 minutes.

After inoculation the meat was kept at room temperature for periods of from 3 to 19 days, after which it was ground in a mortar and extracted with either alcohol or water. Water extracts were heated to 70° for 30 minutes. Alcoholic or ether extracts were evaporated to dryness *in vacuo* and resuspended in salt solution. Toxicity was determined by the intraperitoneal injection into young rats or white mice.

The toxic substance is readily produced in pork and fish by *B. paratyphosus B.* or *B. proteus* but not by *Staphylococcus albus.* It was not recovered from uninoculated controls. As has been found by others, it is heat resistant, withstanding 100° C. for 30 minutes. It is soluble in water, alcohol and ether. More refined chemical methods may demonstrate two toxic substances, one of which causes diarrhea and the other prostration and death. It was quite noticeable that water extracts produced death while alcohol and ether soluble fractions gave rise to a transient diarrhea.

It is apparently not a protein as it is soluble in absolute alcohol and is not precipitated by sodium tungstate. It will pass through a Mandler filter. In attempts to produce an antitoxin in rabbits treated with a toxic water extract no protective action could be demonstrated by the serum of these animals.

A toxin is produced in cooked pork and fish by *B. paratyphosus B.* and *B. proteus* but not by *Staphylococcus albus.* This toxin is heat resistant and is probably not a protein. Attempts to produce an antitoxin were unsuccessful.

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Ephedrine Hydrochloride on the Excised Ureter of the Dog.

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Apparently the only observation thus far made of the effects of ephedrine on the ureter is that reported by J. Hofbauer.[1]

Hofbauer obtained a stimulating effect from ephedrine on both longitudinal and ring preparations of the excised ureter of the pig.

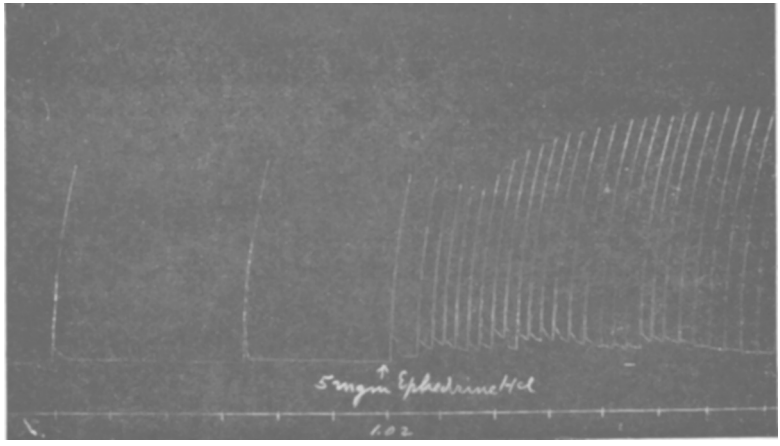
[1] Hofbauer, J., *J. Urology,* 1928, xx, 413.

The degree of stimulation produced was less than that produced by epinephrine. The only concentration of ephedrine which he seems to have employed was a rather high dilution of the drug, namely, "0.3% ephedrine in 50 cc. of oxygenated Locke's solution."

The present report deals with the effect of both dilute and concentrated solutions of ephedrine hydrochloride on the upper two-thirds of the excised ureter of the dog, when the segment was suspended in Locke-Ringers' solution, the pH of which was 8.2.

The preparation of ephedrine hydrochloride was obtained from Dr. Bernard E. Read of the Department of Pharmacology, Peking-Union Medical College. It had the following properties: Melting point, 215° to 216° C.; optical rotation, —32.2° to —32.5°.

The usual effect on the dog's ureter may be seen from the tracing of one experiment with one dose.



TRACING NO. 1.
Effect of 5 mgm. of ephedrine hydrochloride on the surviving ureter of the dog. Time in minutes.

The range of dosage extended from 1 to 90 mg. of ephedrine hydrochloride in 100 cc. of Locke-Ringer's solution, the former dilution closely approaching that used by Hofbauer. The concentrated solutions were employed in order to determine whether the dominant effect on the ureter was stimulation or depression.

Conclusions: 1. Ephedrine hydrochloride is mainly stimulant to the excised ureter of the dog. 2. The qualitative effect of ephedrine hydrochloride on the dog's ureter closely resembles that produced by epinephrine. 3. Ephedrine hydrochloride and epinephrine differ widely quantitatively when measured by the reaction of the surviving ureter to these agents, the latter being in some experiments

about 200 times as stimulant as ephedrine. 4. The depression of the dog's ureter which appears after the use of the more concentrated solutions of ephedrine hydrochloride, invariably follows a rather extended period of stimulation, a period in which tonus, rate and amplitude of contraction, either singly or collectively, may be increased.

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Cell Proliferation Response to Sulphydryl in Man.*

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Hammett[1] has shown in studies from this Institute that the radicle –SH is the essential stimulus to cell division in normal growth by cell number in certain plants and paramecia. Extension of this work to a mammal (rat) has shown that solutions containing this radicle, stimulate cell division in the healing of wounds.[2] This report embodies the work on man.

A male, 76 years old, fracture upper third of the thigh, had an ordinary varicose leg ulcer on the same leg, one half way between the knee and ankle. This ulcer was divided in half by a dam of adhesive plaster and one part treated with a solution of thio-glucose,[2] while the other half was treated by painting with 5% mercurochrome solution. The ulcer had existed for over 10 years, had never healed despite numerous and various treatments and with short periods of improvement, continued to progress. At the end of 24 hours, the ulcer was sharply divided by a growth in the sulphydryl treated part consisting not only of granulations but also of thin, translucent, ground-glass-like epithelium growing in from the edges and in islands in the ulcer. The original depth of 1/8 to 1/16 inch had filled to the surface with granulations at points devoid of epithelium to almost the point of exuberance. The other half of the ulcer showed no progress.

A woman, 74 years old, with a fracture of the hip, developed a

* Since these experiments were done, increased cell proliferation in root tips has been obtained with the same compound, *viz.*, thio-glucose.

[1] Hammett, F. S., *Protoplasma*, 1929, vii, 297; *Trans. Am. Philosoph. Soc.*, 1929, lxviii, 151.

[2] Hammett, F. S., and Reimann, S. P., *J. Exp. Med.*, 1929, l, 445.