a pH of 8.0 before the titration with N/10 HCl was started. This was done because it was found that the pH of different batches of Fogelson's mucin obtained from the manufacturing firm (Armour and Co.) varied from pH 7.5 to 8.0. The manufacturers are requested by Dr. Fogelson not to supply a gastric mucin powder which in solution has a more alkaline pH than 8.0. It is evident from the titration curves that a pH of 4 approximately one-half of the combining power of Fogelson's mucin is due to the presence of the peptone or 60% alcohol soluble fraction.

"Washed gastric mucin" and "gastric peptone" have been prepared in powder form (Wilson and Co.) for the purpose of testing their clinical effectiveness in peptic ulcer.

5807

Effect of Hypertonic Sodium Chloride Intravenously on Intestinal Peristalsis.

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Several investigators[1, 2, 3, 4] have found that the injection of hypertonic sodium chloride, intravenously, increases intestinal tone and motility, and Ross[4] and Orr, Johnstone and Haden[1] have reported favorably on its clinical use in adynamic ileus. Experimentally, these investigators, by the use of balloons or direct observations, have demonstrated unequivocally that following the injection of a hypertonic salt solution the tone and motility of the small intestine is decidedly augmented. But balloon tracings and direct observation of the intestine do not decisively show that the propulsive type of motility of the intestine is augmented. That the propulsive type of motility of the intestine is increased by a certain drug or procedure can only be shown by making observations on the time of passage of a bolus through a measured length of intestine. Accordingly, we devised the following experiment to determine the effect of hyper-

[1] Orr, T. G., Johnstone, P. N., and Haden, R. L., *Surg. Gynec., and Obstet.*, 1931, **52**, 941.

[2] Hughson, W., and Scarff, J. E., *Johns Hopkins Hosp. Bull.*, 1924, **35**, 197.

[3] Dreyer, N. B., and Tsung, Thelma, *J. Pharmacol. and Exp. Therap.*, 1929, **36**, 629.

[4] Ross, J. W., *Canad. Med. Assn. J.*, 1926, **16**, 241.

tonic salt solution on the rate of passage of a bolus through a known length of small intestine.

A Thiry-Vella fistula of the jejunum of known length was made in 4 dogs. At various intervals throughout a period of 2 months a bolus of uniform size and shape was placed in the cephalic end of the fistula or loop and the time of passage through the loop was determined. Many preliminary tests of rate of passage through the fistula were thought necessary in order to rule out the possibility of spontaneous variations in the propulsive activity of the loop. On the day of injection of sodium chloride a preliminary test was made of the time of passage, then 10 cc. of a 5% sodium chloride solution were injected intravenously and its effect on the time of passage was followed.

TABLE I.

Passage of a bolus through a Thiry-Vella fistula, giving average rate at given times after operation.

Dog No.	Average Rate			Length of fistula post-operative
	1 week	1 month	2 months	
	min.	min.	min.	in.
1	4	4	4	6
2	4-8	4-8	20-60	6
3	10	10-15	30-60 or longer	8
4	8-12	10-20	30-60 or longer	8

Table I shows the effect of the "post operative time factor" on the passage of a bolus through the fistula in the 4 dogs. It is to be noted that in 3 of the 4 dogs the propulsive motility decreased as time elapsed. This suggests that the "disuse" of the loop of intestine tends to decrease its motility of the propulsive type which is opposite to the effect of "disuse" on the general postural tone of the loop, since Dr. Ivy informs me that the postural tone of an isolated stomach or loop of the intestine increases in postural tone as time elapses. This further indicates that we must distinguish between, or it might be best to divide intestinal motility into 2 general types, namely, propulsive motility and non-propulsive motility. In this connection, we might add that pilocarpine (2-3 mg.) and morphine (15 mg.) in the doses we used increased the postural tone and rhythmic activity of the loop, but did not increase the rate of passage of the bolus.

Table II shows that intravenous injection of 10 cc. of 5% NaCl solution increased the propulsive motility of the jejunal loop in 3 of the 4 dogs, the exception being the dog in which the "post operative time factor" did not lead to a decrease in propulsive motility.

TABLE II.
Effect of intravenous hypertonic 10 cc. 5% NaCl on propulsive motility of a Thiry-Vella fistula of the jejunum.

Dog No.	Oct. 21, 1931 Normal Time	After NaCl	Latent period or NaCl effect	Oct. 25, 1931 Normal Time	After NaCl	Latent period or NaCl effect	Oct. 28, 1931 Norm. Time	After NaCl
	min.	min.	min.	min.	min.	min.	min.	min.
1	4	4	—	4	4	—	4	4
2	30 to go ½ way	4	6	10	5	6	7	4
3	"	4-6	7	20	10	6	12	10
4	"	8	6-8	15	10	6	13	11

It might be said that, in this dog, propulsive motility was maximum and hence could not be influenced by the salt solution. That this explanation is probable, is supported by the fact that the effect of the injection of salt solution lasts at least one week, and that an injection of salt solution during this period failed to cause a marked increase in propulsive motility.

In regard to the action of the hypertonic salt solution on the motility of the colon and stomach, we can only at this time state that it does not cause defecation, and that it increases the tone and motility of the stomach as recorded by a balloon. In order to answer this question specifically, study is under way to determine the effect of hypertonic sodium chloride solution on the evacuation time of the colon and stomach.

Conclusion. The intravenous injection of 10 cc. of 5% NaCl solution increases the propulsive type of motility of a jejunal loop when the loop is manifesting subnormal propulsive motility.

5808

Observations on the Metabolism of the Tapeworm, Moniezia Expansa.

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The association of the tapeworm with an Addisonian type of anemia in the human has been repeatedly described. The tapeworm may destroy a specific nitrogenous substance necessary for blood regeneration.[1] Observations on the respiration and fermentation of

[1] West, Randolph and Howe, Marion, *J. Am. Med. Assn.*, 1931, **97**, 685.