It would seem that this procedure could be made use of in the institution as well as in the home, and that this type of therapy could be adapted in the case of measles and other infectious diseases.

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A theory of internal disinfection with nascent formaldehyd.

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The works of a large number of investigators have shown that under ordinary conditions the cleavage of urotropin into its components, formaldehyd and ammonia, takes place only in the urinary tract and in other acid media. In the neutral tissue fluids this cleavage does not take place.

During their work on infectious abortion in cattle, Mohler and Traum[1] fed urotropin to cows for the purpose of ascertaining whether this substance would pass into the udder as formaldehyd as stated by Klein.[2] In a number of tests on 5 cows that received from 10 to 80 grams of urotropin per day, the milk contained urotropin but no formaldehyd.

In his studies on acid intoxication, Szili[3] found that the alkalinity of the blood of rabbits, dogs and sheep could be appreciably lowered by the intravenous injection of 0.6 per cent. hydrochloric acid. Insofar as the cleavage of urotropin in the urinary tract is probably brought about or assisted by the acid phosphates present it seemed reasonable to suppose that this cleavage might also be brought about in the neutral tissue fluids if the alkalinity of these fluids were slightly lowered by the administration of acid.

In the work now in progress, cows receive large doses of urotropin by mouth (up to 3 grams per kilo of body weight) followed immediately by the intravenous injection of several liters of 0.6 per cent. ($n/6$) or 0.9 per cent. ($n/4$) hydrochloric acid, in Ringer solution. Samples of milk are obtained and tested for formaldehyd.

[1] Bureau of Animal Industry Circular 216.

[2] *Proc. Amer. Vet. Med. Asson.*, 1913, p. 395.

[3] *Arch. f. d. ges. Physiol.*, Bd. 115, p. 82, 1906.

The theory involved in this procedure is as follows: The urotropin in contact with acid or acid phosphate breaks up into formaldehyd and ammonia. The ammonia thus liberated is available for neutralizing the acid injected, so that an animal that has received urotropin should be more resistant to the harmful effects of the injected acid than one that has not received urotropin. In round numbers, 1 gram of urotropin will liberate 1 gram of formaldehyd and sufficient ammonia to neutralize 1 gram of hydrochloric acid.

The results obtained thus far are not conclusive. In a total of 10 experiments on 4 cows that received both acid and urotropin, (see accompanying table) formaldehyd was detected in the milk 4 times and was not detected 6 times. The positive findings are tentatively regarded as correct. In some cases, the amounts of hydrochloric acid that could be injected into cows without apparent injury, were so unexpectedly large, that the results are presented now because of their possible interest to those studying acidosis or the adaptibility of the vascular system.

Animal.	Date.	Body Weight, Kilos.	Injected Intravenously.		Urotropin Fed by Mouth, Grams.	Formaldehyd in Milk.	Grams HCl per Kilo Body Weight.
			Liters.	Per Cent. HCl.			
Cow 715	2/15	461	6	0.6	1,350	Absent	0.08
	2/17		13.5	0.6	1,350	Absent	0.18
Cow 1009 ...	3/13	250	15.5	0.6	None	No	0.37
	3/20	209	20	0.9	627	Milk	0.87 (after 48 hour fast)
Cow 1013 ...	1/15	293	11.5	0.6	80	Absent	0.23
	1/16		12	0.6	80	Absent	0.25
	1/27		20	0.9	907	Present?	0.61
	3/27	227	2.5	0.6	570	Absent	0.07 killed (had fasted 48 hours)
Cow 1026 ...	2/10	304	3	0.9	900	Present?	0.09 killed
Cow 1042 ...	1/20	231	12	0.9	80	Absent	0.47
	4/1	239	8.4	0.9	478	Trace	0.32 killed
Cow 1096....	2/1	391	4.4	0.9	None		0.10 killed
Steer 1128 ..	2/5	339	10	0.9	None		0.26
	3/17		31.7	0.6	None		0.56
	3/24	300	23	0.9	900		0.70 killed (had fasted 48 hours)
Cow 852.....	4/7	386	9.2	0.9	772	Present 1:100 000	0.22 killed

The animals varied greatly in their tolerance for the injected acid. Thus Cow 1026 was killed by a single injection of 3 liters

of 0.9 per cent. hydrochloric acid: Steer 1128 was killed by the third injection of 23 liters of 0.9 per cent. acid; while Cow 1009 still lives after receiving the unexpectedly large amount of 20 liters of 0.9 per cent. acid following an injection of 15.5 liters of 0.6 per cent. acid made seven days before. In Szili's work, the largest dose of acid tolerated by the experimental animal (a ram) was 0.23 gram of hydrochloric acid per kilo of body weight. In the present work, Cow 1009 is apparently in good condition after receiving 0.87 gram of hydrochloric acid per kilo of body weight.

88 (1020)

Anaphylaxis to formed or cellular elements.

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Our present knowledge of anaphylaxis is based almost entirely on the study of proteins in solution, such as blood serum. From the standpoint of infectious disease, the analysis of the immunological reaction to formed elements would appear to be of greater importance. The anaphylactic response to bacteria has regularly been found to be extremely slight. The present report deals with a study of the anaphylactic response to red blood cells.

Friedberger reported during the current year that guinea pigs could not be sensitized to alien red blood cells either by the active or by the passive method. On the contrary, these animals can regularly be sensitized by either method provided the proper technique be followed. In order to sensitize actively against alien red blood cells it is essential to give a series (2 or 3) of preliminary injections, instead of the single sensitizing injection which is customary in the case of serum. The reason for this will be obvious from the subsequent data. As regards passive sensitization, it is of importance to note that Friedberger, like Thiele and Embleton and others who have worked on this subject, used the serum of rabbits immunized against sheep red blood cells. This particular type of serum, however, is peculiarly unfitted for such an experiment. It possesses primary toxicity for the