

TABLE III.
Comparative Hemolytic Effect of Test Substances on Sheep Erythrocytes.

Substance	Degree of Hemolysis
0.85% NaCl	0
Distilled water	++++
Nicotinic acid	++++
" " amide	+
Nicamin	+
Protamine	0
Thromboplastin	0
Heparin solution	0

thus accelerate the conversion of prothrombin to thrombin, thereby overcoming the anticoagulant action of heparin.⁴

Summary. Nicotinic acid has no coagulant effect when tested *in vitro* with heparinized recalcified plasma. Its coagulant action is comparable to that of distilled water when tested *in vitro* with heparinized whole blood. Nicotinic acid is an active hemolytic agent and its coagulant effect is apparently due to the release of thromboplastin from the disrupted elements of the blood. Compounds of nicotinic acid which do not produce significant hemolysis have no appreciable coagulative potency.

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Effect of Milk on Gizzard Erosion and Cholic Acid in the Chick.

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The preventive and curative effect of cholic acid on dietary gizzard erosion of chicks has been reported.^{1, 2} The effect is similar in the case of gizzard erosions produced by the use of either a basal diet or a practical rearing diet to which cincophen has been added.² We desire to report at this time evidence for the existence in cow's milk of a labile substance which acts like cholic acid.

Dried milk products were fed by mixing in the diets; liquid milk products were given to the chicks in place of the drinking water.

⁴ Quick, A. J., *Am. J. Physiol.*, 1936, **115**, 317.

¹ Almquist, H. J., and Mecchi, E., *J. Biol. Chem.*, 1938, **126**, 407.

² Almquist, H. J., and Mecchi, E., *Proc. Soc. Exp. Biol. and Med.*, 1941, **46**, 168.

TABLE I.
Effect of Milk Products on Cholic Acid Content and Gizzard Erosions in Chicks.

Gallbladder bile					
Supplement to basal diet	Level %	Volume per chick cc	Cholic acid		Gizzard erosion score
			Per gm dried bile mg	Per chick mg	
None		.16	61	3	1.04
Dried whole milk	10	.18	86	4	1.10
Whole milk, raw		.28	135	11	.50
“ “ boiled		.28	131	10	.30
Skim milk, raw		.31	134	11	.42
Supplement to practical mash					
None		.25	169	11	.06
Skim milk, raw		.55	316	39	.00
Cinecophen	1	.23	206	13	.78
“	1	.50	368	39	.09
+ skim milk, raw					

The diets and the details of the experimental procedure have been described.^{1, 2}

The results given in the table show no effect on the characteristics measured in the case of dried whole milk. This has also been found true in the case of commercial dried skim milk, dried buttermilk and dried whey. On the other hand, liquid milk products distinctly reduce the severity of gizzard erosion, increase the gall bladder bile volume per chick and increase the quantity of cholic acid per chick. The data show that this effect of liquid milk products is stable to heating up to the boiling point. Other experiments have indicated that the activity is not removed by steam distillation. The effects of liquid milk products are very distinct with both types of erosion producing diets.

The evidence presented is consistent with earlier reports¹ linking gizzard erosions with a deficient formation of bile, especially of cholic acid, within the chick. It is further indicated that a substance with an activity like that of cholic acid exists in cow's milk. Attempts to detect cholic acid in skim milk yielded only negative results.