proctodeal pit in that portion of the ectoderm which happens to come into contact with it. The invagination of the pit brings it into contact with the entoderm of the hind-gut. The latter completes the process of anus formation by inducing the perforation of the proctodeal pit.

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Failure of "Vitamin K" Excess to Heal Encephalomalacia of Chicks.

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During the course of experimentation on chick rabies attention was drawn to the fact that most of the early literature did not consider the dietary factors necessary for normal nervous system development in the fowl. Pappenheimer, *et al.*,[1, 2] described the encephalomalacia present in experimental and normal flocks. This paper is concerned with the effects of a high "vitamin K"* level in an attempt to alter the encephalomalacia in chicks which is believed due to capillary alteration by some unknown factor missing from the diet.

Healthy day-old chicks were placed on deficiency diet No. 108,[1] "normal" diet No. 20[1] and controlled by a series on a ration similar to No. 20, but more satisfactory for growth. The chicks had no access to their feces. The alfalfa leaf meal extract (hexane) was homogenized in cream with the aid of a Jubilee type homogenizer and mixed with milk. Daily levels of 5 mg, 10 mg, 15 mg, and 20 mg were fed to the 4 series consisting of a total of 120 chicks on the deficiency diet.

Results. Six paralytic chicks occurred in a series of 30 on the deficiency diet without excess "vitamin K"; while 19 paralytic chicks occurred in the 4 series of the 120 chicks receiving the deficiency diet plus excess levels of "vitamin K." One paralytic chick recovered spontaneously while on the deficiency diet without excess "vitamin K" in contrast to 12 paralytic chicks receiving the excess "vitamin

1 Pappenheimer, A., and Goettsch, M., *J. Exp. Med.*, 1931, **53**, 11.

2 Goettsch, M., and Pappenheimer, A., *J. Biol. Chem.*, 1936, **114**, 693.

* The alfalfa leaf meal was generously contributed by Dr. W. Wenner, The Upjohn Company, Kalamazoo, Michigan. 1.0 cc of this extract is equal to 10 g in "vitamin K" activity of alfalfa meal.

K". There were no differences observed in the clinical and microscopic picture of the paralytic chicks on the deficiency diet alone or with excess levels of "vitamin K." The effects of high levels of "vitamin K" with experimental rations will be reported later.

Conclusion. Encephalomalacia of chicks is not prevented by the administration of a "vitamin K" excess.

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Effect of Normal and Renal Hypertensive Dog Plasmas on Surviving Arterial Rings.*

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At the present time there is inconclusive evidence both for and against the presence of a pathogenetic pressor substance in the blood of dogs rendered hypertensive by the technic of Goldblatt. We have studied this question by determining the effect of citrated plasmas from normal and renal hypertensive dogs on the tonus of surviving beef arterial rings. Since citrated plasma from normal dogs contains a constrictor substance or substances, we looked for a possible quantitative difference between the tone-augmenting effects of the normal and hypertensive plasmas on the arterial rings.

The method employed was essentially that of Meyer[1] and Dale and Laidlaw.[2] Rings about 4 mm in diameter and 3 mm in width were obtained from the tertiary division of the superior mesenteric artery of freshly slaughtered beeves and stored for 24 to 72 hours in Locke's solution at 4°C. The arterial ring was then placed in a smooth muscle chamber of 8 cc capacity containing oxygenated Locke's solution maintained at 37°C by a constant temperature bath. The lever used magnified the tonus changes of the arterial ring eleven times. The initial tonus of the arterial segment was partially overcome by a stretching load of 2 g attached to the long arm of the lever at the same distance from the fulcrum as the attachment of the artery to the short arm. After the tonus level of the arterial ring had relaxed to an equilibrium level, usually in a period of one hour,

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1 Meyer, O. B., *Z. f. Biol.*, 1906, **48**, 352.

2 Dale, H. H., and Laidlaw, P. P., *J. Pharm. and Exp. Therap.*, 1912, **4**, 75.