

chick.**

Summary. It has been shown that growing

** The growth promoting property of the gelatin-supplemented diets has been substantiated in practical feeding tests carried out at the Westfield (Wis.) State Hatchery. Brook trout (*Salvelinus fontinalis*) fingerlings were fed either the experimental diet or the hatchery stock diet of pork spleen mixed occasionally with brewer's yeast at 10% of the body weight. After 8 weeks the fish receiving the meat diet had gained 52% over the initial weight while those receiving the experimental diet had gained 40%.

trout require a diet containing fresh meat. Mixed diets devoid of fresh meat did not produce any increase in the growth of trout. Varying the nature of the dried liver fractions used did not stimulate growth. When these diets were enclosed in gelatin capsules and force fed to the fish, a marked gain in weight was obtained. Supplementing the meatless diets with gelatin resulted in satisfactory initial growth. The supplemented diets did not sustain continuing growth beyond 7 weeks suggesting that further deficiencies exist in these rations.

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Studies on Certain Filtrable Viruses. VI. Antigenic Properties of Entire Embryo Fowl Pox Vaccine.

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In a previous report,¹ the results of immunizing farm flocks with fowl pox vaccine prepared from entire chick embryo were described. The vaccine consisted of a composite of the chorio-allantoic membrane, yolk, yolk sac, albumen, embryo proper, and fluids from previously inoculated embryos that showed gross lesions on the chorio-allantoic membrane. While a high concentration of virus was noted in the chorio-allantoic membrane, the presence of virus in other parts of the embryo was also demonstrated.² The dehydrated vaccine was suspended 1-100 in tryptone broth and applied by the 3-stick method in 35 healthy farm flocks, comprising 25,164 chickens. Nine days after inoculation, more than 6000 birds, approximately one-fourth of the vaccinated birds, were observed with 95.85% showing takes. Forty-three days after inoculation, 71 culled chickens from 3 of the flocks were brought to the Laboratory and artificially exposed to fowl pox virus

by the feather follicle method. Eighty-eight and seven-tenths per cent proved refractory.

The present note concerns an observation on the duration of the immunity produced by entire embryo vaccine. Seventy-one birds selected from 4 of the flocks were exposed, one year subsequent to vaccination, on the patau-gium by the 3-stick method to fowl pox virus in a 1-100 suspension in tryptone broth. The

TABLE I.
Artificial Exposure of Chickens Vaccinated One Year Previously with Entire Embryo Fowl Pox Vaccine.

Flock	Birds exposed* 8/18/43	Reaction to exposure			
		8/25/43	9/1/43	9/9/43	
1	35	—	—	—	
2	12	—	—	—	
3	15	+	+	+	
		(3)†	(3)†	(1)†	
4	9	—	—	—	
		—	—	—	
Total	71	+	+	+	
		(3)	(3)	(1)	
Nonvaccinated controls	10	+	+	+	
		(10)	(10)	(5)	

* Fowl pox virus 3-stick method.

— = No lesion.

+ = Fowl pox lesion

† No. of birds.

¹ Thorning, W. M., Graham, Robert, and Levine, N. D., *Am. J. Vet. Res.*, 1943, 4, 250.

² Thorning, W. M., Thesis in partial fulfillment of Master of Science degree, University of Illinois Graduate School, 1942.

exposing virus was of the same strain as that used for vaccination, but consisted of the chorio-allantoic membrane which represents a greater concentration of virus than the entire embryo vaccine. The artificially exposed chickens were given three inspections at weekly intervals for lesions of fowl pox following exposure. Results of the exposure are noted in Table I.

Out of the 71, 3 susceptible birds were

encountered. These were from the same flock. Ten unvaccinated control birds simultaneously exposed to the challenging virus proved susceptible. Though the number of birds included in this observation is too small to permit conclusion, it appears that a large proportion, 95.7%, of this group immunized with entire embryo vaccine proved immune one year after vaccination.

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Relation of Changes in Proximal Segment of Renal Nephron to Maintenance of Acid Base Equilibrium.*

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In a previous publication¹ in which consideration was taken of the stability of the acid-base equilibrium of the blood in animals falling in different age periods, the observation was made that in a group of senile animals varying in age from 9-19 years, 6 animals showed chemical evidence of renal dysfunction in which this equilibrium was stabilized against the influence of a period of anesthesia from chloroform lasting for 45 minutes. Other members of this group (Group III) of senile animals which gave no chemical evidence of a renal injury failed to show this factor of resistance to the action of the anesthetic body. Further studies in senile animals have strengthened this observation by an investigation of 23 additional dogs that gave evidence of their ability to maintain what they had established as their normal acid-base equilibrium when this fundamental balance was subjected to an influence which in other senile animals and in dogs of younger age periods resulted in a depletion of the alkali reserve of the blood.

The control group of animals for this study is represented by 29 senile dogs that have

had normal urines both chemically and microscopically, an average elimination of phenol-sulphanephthalein of 38% in an hour period and a normal alkali reserve of the blood which varied between 8.05-8.15. Kidney tissue was removed from 4 of these animals under local anesthesia supplemented by nitrous oxide-oxygen. Such tissue has shown histologically unevenly distributed evidence of a chronic glomerular injury without any cytological evidence of epithelial participation in this process. The epithelium of the nephron in its different segments was of normal configuration. The brush border of the cuboidal cells in the proximal convoluted segment remained intact. In these 4 dogs and in the other members of the senile group of controls that gave no chemical evidence of renal disease the use of chloroform for 45 minutes resulted in an edema of the epithelium in the proximal convoluted segment, more rarely vacuolation and fatty degeneration and a disappearance of the brush border of these cells. Associated with such cytological changes in this epithelium there have occurred two modifications in renal function: a rapid reduction in the reserve alkali of the blood to readings as low as 7.75, a delay or inability on the part of the animals to restore this equilibrium and a reduction to as low as 5%

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¹ MacNider, Wm. deB., *PROC. SOC. EXP. BIOL. AND MED.*, 1943, **53**, 1.