

Hemoglobin and red cell counts were also made at the beginning of the treatment period. The red blood cell counts were essentially normal, but the hemoglobin values were low (avg. 10.6 g %).

Examination of the thyroids and tongues of the pigs in Groups IV and V indicated hypertrophy of these organs as reported previously (8). In addition, in certain areas of the thyroids the follicles were abnormally small and contained little colloid.

Summary. A vit. B₁₂ deficiency has been produced in baby pigs fed an alpha-protein "synthetic milk" diet. The addition of aureomycin to this diet, either before or after the

deficiency state existed, did not give a beneficial response. The injection of 20 mg of cortisone daily into vit. B₁₂-deficient pigs enhanced the deficiency state rather than having any curative effect.

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Blood and Plasma Volume and Thiocyanate Space of Normal Chicks.* (18992)

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(Introduced by F. J. Stare.)

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The blood and plasma volumes and thiocyanates space of humans, dogs and rats have been investigated by various authors but no data appear to have been collected on chicks. In connection with studies on high salt diets which will be published subsequently we have determined the volumes of these fluid spaces in normal White Leghorn cockerels of various ages. The ease with which intra-jugular injections may be made in this species may make it a useful species for such studies.

Methods. The methods used have been previously described by Wang and Hegsted (1) in studies with rats. A mixture of Evans Blue Dye and ammonium thiocyanate solution

was injected into the jugular vein of the chick under light ether anesthesia. Ten minutes later a blood sample was taken with a heparinized syringe by heart puncture. The hematocrit was determined with the small Van Allen tubes and the thiocyanate and Evans blue concentrations in the blood determined as previously described. From 0.2 to 0.3 ml of solution containing 5 mg of dye and 40 mg of thiocyanate per ml was used depending upon the size of the chick. The concentrations in the solution injected were determined by analysis after the addition of a known amount to a control sample of chick blood. Preliminary studies showed that ten minutes after injection was sufficient time to yield essentially stable blood concentrations. When several chicks were to be studied, it was convenient to inject 4 chicks at approximately 2½ minute intervals and bleed them during

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TABLE I. Mean Values Obtained with Chicks of Various Ages.

Age, days	No. of chicks	Body wt, g	Plasma vol, % B. wt	Blood vol, % B. wt	Thiocyanate space, % B. wt	Hematocrit, %
13	7	121	6.7	9.9	40.7	32.2
20	6	190	6.3	9.1	39.9	31
27	7	279	7.2	10.4	43.8	30.6
35	12	411	6.4	9	46.2	30.4
Mean $\pm$ Stand. error of mean			6.56 $\pm$.15	9.55 $\pm$.21	43.28 $\pm$.78	30.47 $\pm$.20

the subsequent 10 minutes.

Results. The mean values obtained from 32 chicks which were examined in groups of different ages are shown in Table I. The values are essentially constant when expressed as percentage of body weight regardless of the age or weight of the chick. In earlier studies with rats(2), most of the fluid volumes did not remain constant at different ages when expressed as percent of body weight. However, only a relatively small range of age has been studied with chicks and these values probably will not hold for much older birds. If the present values are compared to those obtained with young rats(2), the blood volume

is approximately the same but the plasma volume is larger because of the smaller red cell volume. The thiocyanate space is much larger than was found in rats and is similar to that obtained by Fellers *et al.*(3) for very small babies. This might be expected since the smallest rats studied, 60-to-70 grams, are much older actually and relatively than the chicks used in this work. Data on suckling rats which might be comparable have not been reported.

Summary. The blood and plasma volumes and thiocyanate space in normal chicks from 13 to 35 days of age have been determined.

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Demonstration that Para-aminohippuric Acid "Enters" the Human Erythrocyte.* (18993)

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Para-aminohippuric acid (PAH) has been found to penetrate the canine erythrocyte(1),

but its entrance into the human erythrocyte has been denied(2-4). This report demonstrates that PAH does "enter" the erythrocyte in man.

Recent studies in this laboratory of renal blood flow (RBF) in man included a com-

* The opinions or assertions contained herein are the private ones of the writers and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

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