saccharide in skin can be the steady state of 2 opposing rates: rate of synthesis and rate of depolymerization. Whether estradiol exerts its effect by increasing rate of synthesis while rate of depolymerization remains the same or whether accumulation results from slowing of rate of depolymerization while rate of synthesis remains constant is an interesting speculation on which we have no evidence.

Although we did not succeed in modifying the effects of estradiol on mucopolysaccharides we confirmed an observation of Schmidt's(5) that cortisone had no effect on accumulation of mucopolysaccharides in mouse skin.

Since some tumors(8-10) contain large amounts of hyaluronic acid, it was of interest to study the effects of estradiol on their growth *in vivo* and *in vitro*. Preliminary studies were initiated to determine whether the accumulated ground substance could act to retard or at least contain growth of these tumors. Studies have also been started to determine whether the accumulated mucopolysaccharide might also cause local accumulation of antibodies in skin and hence act as a deterrent to local infection.

Summary. Accumulation of mucopolysaccharides in response to estradiol benzoate inoculation in the skin of various rodents was studied. Only white Swiss mice responded with increased accumulation. Rats, guinea pigs, and hamsters did not show this response. Neither age, sex of the animal, nor dose of estradiol had any effect on amount of mucopolysaccharide accumulated. This activity of estradiol was neither effected by castration of males nor reversed by administration of cortisone.

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Blood Glucose Distribution in the Domestic Fowl. (25671)

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It has been demonstrated(1) that in adult laying hens the circulating blood glucose is transported almost exclusively in the plasma. In this respect these birds are similar to the adults of many subprimate mammals(2). Blood glucose has been found to be almost equally distributed in the blood of the fetus and of the newborn in swine, sheep and cattle (2,3). A gradual shift in distribution occurs within the first few months of life at which time almost all of the sugar is in the plasma. Plasma of the newborn foal contains essentially all of the glucose at birth(2). It has been suggested that the changes in swine and ruminants are associated with the change-over from fetal to adult erythrocytes and differences in glucose metabolism observed between the 2 types of red cells(4,5). Foal blood contains only adult cells at birth. In the chicken, replacement of fetal erythrocytes by adult types is said to be completed by the third week after hatching(6). This study deals with distribution of circulating glucose in the blood of the chicken from time of hatching until maturity.

Materials and methods. Eighty-five chickens were used. With the exception of 24 Rhode Island Red chicks, ages 2, 3 and 4

TABLE I. Distribution of Blood Glucose in the Chicken.

Group	No.	Packed-cell vol, %	Whole blood glucose, mg %	Plasma glucose, mg %	Calculated plasma glucose, mg %	% glucose in plasma
Newly-hatched S.C.W.L., ♂-♀	24	26.5 ± .69*	167 ± 4.3	235 ± 4.5	227 ± 4.4	103.8
2-wk-old R.I.R., ♂-♀	8	28.8 ± .64	162 ± 6.8	226 ± 8.5	227 ± 6.4	99.3
3-wk-old R.I.R., ♂-♀	8	28.8 ± .62	173 ± 3.2	222 ± 4.0	242 ± 3.2	92.0
4-wk-old R.I.R., ♂-♀	8	30.5 ± .86	184 ± 5.0	259 ± 9.4	265 ± 5.3	98.0
7-wk-old S.C.W.L., ♀	7	31.9 ± .50	156 ± 2.8	224 ± 3.3	229 ± 3.8	97.6
4½-mo-old S.C.W.L., ♂	6	32.3 ±1.39	169 ± 7.4	242 ±10.5	250 ± 8.2	96.7
6½-mo-old S.C.W.L., ♂	6	37.3 ± .84	188 ± 2.2	273 ± 4.6	300 ± 3.5	91.0
1-yr-old S.C.W.L., ♂	6	42.7 ±1.18	164 ± 2.4	262 ± 5.4	287 ± 3.7	91.5
Adult laying hens, S.C.W.L.	12	29.4 ± .63	173 ± 3.0	233 ± 4.4	245 ± 4.1	95.4

* Mean and stand. dev. of mean.

weeks, the birds were single comb White Leghorns. Ages and sexes are given in Table I. The newly-hatched chicks were not fasted; 2, 3, 4 and 7 week-old birds were fasted for 12 hours; 4½ month, 6½ month and 1 year old males were fasted for 12, 16 and 18 hours, respectively, and adult laying hens were fasted for 18 hours. Blood was taken by heart puncture with a heparin-wetted syringe. Packed-cell volumes were determined by the high-force micro-capillary method. Blood and plasma glucoses were measured by the Somogyi iodometric titration method on from 1:10 to 1:80 filtrate dilutions depending on quantity of blood available. The parameter, calculated plasma glucose, was computed using measured blood glucose and packed-cell-volume values.

Results and conclusions. The results of these experiments are shown in Table I. Blood glucose was distributed almost entirely in the plasma at all ages studied. Erythrocytes of the newly-hatched chick do not have more glucose in them than do those of the adult bird. Quantity of glucose found in the red cells of the newly-hatched and young chicks is less than that reported for neonatal and young animals of other species. Replacement of fetal red cells by adult types which takes place in the first 3 weeks posthatching is not characterized by a glucose distribution shift. The partition at hatching is similar to that in the foal. Since the foal has adult erythrocytes in the blood at birth and the chick has a mixture of adult and fetal cells, it would appear that the differences in distribution of blood sugar as observed in other species may not be attributed simply to differences in carbohydrate metabolism of the 2 cell types.

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