tone of a hyperglycemia-producing substance. The contrary findings in the literature may be expected in view of the variability in the composition of peptone. Whether a sample of peptone causes a lowering or heightening of blood sugar may depend upon the predominating presence of the substance producing hyperglycemia or hypoglycemia.

In interpreting results on blood sugar, however, we must always bear in mind the condition of the animal. A low glycogen reserve may alter very markedly the response of the rabbit to blood sugar changes. Adrenalin, which ordinarily produces hyperglycemia, may give no change in blood sugar or a hypoglycemia, depending upon the amount of glycogen in the liver. Infection also influences the blood sugar level.[5] Spontaneous infection with *Bacillus paratyphosus B* may sometimes be found.[6] Stock rabbits may develop symptoms of hypoglycemia due to liver cysts containing *Coccidia oviforme.* Degenerative changes have been observed in the liver in infected rabbits.[6, 7] This damage may affect its glycogen content as well as its function with relation to glycogenesis, glycogenolysis or gluconeogenesis. Since injections of peptone also influence the condition of the liver, it is likely that various samples of this preparation may carry different quantities of the substance producing anatomical and physiological derangement.

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Diet and Tissue Growth. VI. Relation of Age to Renal Injury on Diet Rich in Protein.

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In an attempt to explain the discrepancy between the results reported by different investigators on the relation between dietary protein and renal lesions, Moise and Smith[1] have postulated that

young rats may have greater powers of adaptation than old ones, and accordingly may be less susceptible to the injurious effect of an excessively high protein ration. This suggestion was based upon the observation of Arataki,[2] that the formation of glomeruli continues throughout the first hundred days of life, and upon the fact that a very large proportion of the published observations reporting absence of pathologic renal lesions were initiated on young rats. In studies (Moise and Smith[1]) with adult rats fed adequate diets rich in protein, structural lesions were observed at intervals from 90 to 150 days after unilateral nephrectomy. These lesions included both glomerular and tubular changes. The former consisted in serum in the capsular spaces, proliferation of the epithelium of Bowman's capsule with and without adhesions between the tuft and capsule, fibrous thickening of Bowman's capsule, partial fibrosis of the glomerular tuft, and in many instances infiltration of round cells in and around these areas. The most striking tubular changes were dilatation and active proliferation of the lining epithelium. The experiments were initiated at ages between 121 and 202 days and completed at ages between 271 and 348 days.

In our further studies of a similar nature the right kidney was removed from a small series of rats at the age of 30 days. Immediately following the nephrectomy the animals were divided into two groups, placed on the "standard" diet (18 per cent casein) and high protein ration (85 per cent casein) respectively. At the present time specimens of the left kidney are available at time intervals after nephrectomy, varying from 177 to 384 days on the standard diet, and from 171 to 277 days on the high protein food. The latter group showed a very small amount of subcutaneous and intra-abdominal adipose tissue.

The left kidneys of the animals on which a right nephrectomy was performed at the age of 30 days show no changes analogous to the renal lesions observed in the rats operated on after maturity. In the "young" rats maintained on the standard diet for periods varying from 177 to 384 days after a right nephrectomy, no significant renal lesions were observed. In a single section rare minute focal accumulations of round cells was found. On the other hand, in the "young" rats maintained on the high protein ration for periods after nephrectomy varying from 171 to 277 days, focal accumulation of round cells was frequently observed. These changes are not of the same character or extent as the lesions observed in the earlier experiments initiated on adult rats, although the time interval after nephrectomy was considerably longer in the experiments

with "young" animals. The changes in the "adult" group of rats resemble more closely the senescent focal lesions that are found in aged rats (Moise and Smith,[1] Reader and Drummond,[3] and Osborne, Mendel, Park and Winternitz[4]).

These observations provide additional suggestive evidence that young animals have greater powers of withstanding the injurious effect of an extremely high protein diet than do rats subjected at an older age to the same diets.

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Changes in Oxygen Capacity of Blood Pigment in Rabbits Following Splenectomy.

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Nine rabbits were splenectomized, the operative procedure being done as simply and rapidly as possible. Ether anesthesia was used in all cases. Initial blood samples were taken from the ear vein of each rabbit the day before operation and were analyzed for total blood pigment and oxygen capacity by the Van Slyke carbon monoxide method.[1] In all of these initial samples the agreement between the total and the oxygen carrying hemoglobin was within the limits of experimental error. A spectrophotometric analysis of each sample was also made.

The rabbits were bled from the ear daily for three, four, or five days after operation and the blood samples analyzed as before. In every instance it was found that the oxygen capacity dropped below the total pigment, in most cases showing a maximum deviation of 10 to 15 per cent of the total pigment on the second day and returning to the same value as the total hemoglobin on the third or fourth day after operation. It was first thought that the discrepancy between the oxygen carrying pigment and the total hemoglobin content might be due to the presence of methemoglobin. The results of the

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