

strong's Lansing virus strain. Concomitantly, 10 rats never previously injected were used as controls. The animals began to die within 4 days after the injection. Every animal but one of the 69 succumbed within 10 days. The rats showed all types of paralyses, the most common one being bulbar. There were some which had incoördination and peculiar rolling or circling movements as well. The pathologic findings were the same as those described by Lillie and Armstrong.² However, there was not much perivascular infiltration.

Armstrong's virus (Lansing) was carried through 5 generations of rats in only 22 days, transmission being made every fourth day.

Conclusion. The Lansing strain of virus isolated by Armstrong easily produces disease in *Sigmodon hispidus littoralis* rats. Thus far, we have been unable to produce poliomyelitis with any of the 9 stock virus strains carried in our laboratory and named in this paper.

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Quantitative Alteration in Renal Corpuscles of Salamanders Through Variation in Hypophyseal Tissue.*

RAYMOND F. BLOUNT.

From the Department of Anatomy, University of Minnesota, Minneapolis.

Previous reports have shown that increasing the amount of hypophyseal tissue in an amphibian embryo by grafting gives rise to an increase in the thickness of the basement membrane of the renal glomerulus.¹ It has been pointed out that this thickening is similar in appearance to the thickened membrane in human cases of hypertension.^{1, 2} The size of the heart, vasoconstriction, reduced heart rate and other conditions in these test animals simulate a hypertensive state.³ The hypophysectomized individuals show the opposite results of hypotension and may now be stated to have correlated with this a thin basement membrane.

² Lillie, R. D., and Armstrong, Charles, *Pub. Health Rep.*, 1940, **55**, 115.

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¹ Blount, Raymond F., *Anat. Rec.*, 1936, **65**, 1.

² McGregor, Leone, *Am. J. Path.*, 1930, **6**, 347.

³ Blount, Raymond F., *J. Exp. Zool.*, 1935, **71**, 421.

The arrangement of the loops of the capillary tuft indicates that there is a simplification in these hypertensive glomeruli.⁴ This is stated by McGregor² to be true in human hypertension. She also states that there is contraction of glomeruli although no measurements or volume determinations were made. Goormaghtigh⁵ mentions contraction of glomeruli in ischemic kidneys.

In our test animals there appeared to be a contraction in many glomeruli with an increase in the capsular space. How much this increase in space is due to a shrinkage of the glomerulus and how much to an increase in capsular volume had to be determined. The present observations deal with quantitative determinations of volume for the total renal corpuscle, the glomerulus and the capsular space of hypophysectomized, control, and triple pituitary animals. This has been done by the paper cut-out method using every serial section. Two groups of animals were employed. In one, values for every fifth corpuscle were computed individually in 3 sets each consisting of an hypophysectomized, a control and a triple pituitary animal. In all there were 153 corpuscles for which computations were made. In the other series the volumes for all the corpuscles were determined and the averages obtained for the 12 animals of 4 sets.

The general magnitude of one of these glomeruli is about .000150 cu mm. However, considerable variation was found in the volume since there were extremes of .000011 and .000880 cu mm. The larger glomeruli were at the cranial pole of the kidney and the smaller ones at the caudal. Although the smallest glomeruli were found in the triple pituitary animals some few were large. The cranio-caudal gradation in glomerular size was not a factor in the differences in the test animals since the distribution of glomeruli, as to myotome level, was about the same in all 3 types. There was no definite relationship between body size and glomerular size. However, the amount of body volume per glomerulus was greater in the larger animals.

The percentage relationship that the average glomerulus bears to the entire corpuscle is less in the triple pituitary than in the control animal in all the cases except one which is mediocre by other criteria. This animal follows the trend if the mode rather than averages is used. In the hypophysectomized individuals the glomerulus occupies a greater proportion of the capsule in all but 2 cases, the above set and one other. Some glomeruli of these animals show enlargement due to vasodilation. The percentages, in the 4 sets on which values

⁴ Blount, Raymond F., *Anat. Rec.*, 1937, **67**, Suppl. No. 3, 7.

⁵ Goormaghtigh, N., *PROC. SOC. EXP. BIOL. AND MED.*, 1939, **42**, 688.

were obtained for all glomeruli, are in the hypophysectomized, control and triple pituitary animals respectively as follows: 79, 74, 49; 81, 65, 39; 75, 68, 61; and 76, 67, 51. In 2 of these 4 sets the relatively larger capsular space, in the triple pituitary animal, results from the glomerulus' being contracted and in the other 2 from the great increase in the volume of the capsule. Stasis is probably responsible for the large size of some of the triple pituitary glomeruli. In all cases the generally thickened membrane (up to 8 times normal) balances to some extent the contraction of the capillary tuft in determining the glomerular volume.

These observations show that the renal corpuscle of animals with an increased amount of pituitary tissue have glomeruli that often but not always exhibit contraction, and that there is a clear-cut reduction in the relative size of these glomeruli. In the hypophysectomized individuals the corpuscles show no uniform alteration in glomerular size but a definite tendency toward a reduction in the relative size of the capsular space.

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Parasympathomimetic Effects of Erythrocytes in the Cat.

M. B. BENDER.* (Introduced by Gregory Schwartzman.)

From the Laboratories of the Mount Sinai Hospital, New York.

Using the completely denervated iris of the cat as an indicator of circulating autonomic substances, it was found that constriction of the pupil ensued from 35 to 70 seconds following the intravenous administration of 1.0 cc of whole human blood. The blood of rabbit, guinea pig, mouse, monkey, hog and hemolyzed erythrocytes of cat also produced a constriction of the completely denervated iris of the cat. Identical amounts of blood from dog, sheep and ox were without significant effect on the same preparation. The most conspicuous reactions were obtained with rabbit's blood. Large quantities of dog, ox, or sheep blood sometimes produced a slight and slow constriction of the cat's denervated iris.

Other effects caused by the intravenous injection of blood into the cat were a fall in blood pressure, as shown by Abramson, *et al.*,¹ and

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¹ Abramson, D. I., Wasserman, P., and Senior, F. A., *Am. J. Physiol.*, 1938, **124**, 402.