the blood occurred within the spleen and were manifest as a splenic arteriovenous increase in the apparent concentration of hemoglobin measured as cyanmethemoglobin, this increase would be several-fold greater than the observed renal arteriovenous decrease. Such a larger splenic increase might well be of considerable help in the elucidation of what is changed and how it is changed. As pointed out in the previous report apropos somewhat more extensive data, the renal decrease is several-fold too large to represent directly a continuing, irreversible change in the hemoglobin molecule in relation to current concept in regard to survival time of the erythrocyte. Otherwise it has been recognized for some time that the spleen produces changes in the erythrocyte(2,3,4) and more recently that nephrectomy may lead to hemolysis(5,6) and that the kidney may evoke erythropoiesis(7,8).

Summary. A renal arteriovenous reduction in hemoglobin concentration measured as cyanmethemoglobin observed in the anesthetized dog largely disappeared after removal of the spleen. It is surmised that the presence of the spleen leads to changes in the blood that are reversed or otherwise eliminated by the kidney.

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Effect of Increased Urine Excretion on Renal Arteriovenous Reduction in Hemoglobin Concentration in the Anesthetized Dog.* (31833)

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A renal arteriovenous reduction in the concentration of whatever is measured as cyanmethemoglobin was observed in a preceding study(1). While it seemed likely that this reduction would tend to be eliminated or even reversed by the increased removal of water from the blood flowing through the kidney during diuresis, other possibilities could not be excluded *a priori*. The matter was studied in the investigation reported here by observing the renal arteriovenous difference in the apparent concentration of hemoglobin measured as cyanmethemoglobin in the anesthetized dog before and during diuresis produced by infusing an aqueous solution of mannitol.

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Procedure. Seven adult mongrel dogs of both sexes weighing 10-20 kg were used as subjects. In general the same procedures were followed as in the study reported in the accompanying paper(2) in inducing and maintaining anesthesia, in implanting catheters in the renal vessels, and in taking and analyzing blood samples with the exceptions that the arterial and venous pairs of blood samples were drawn simultaneously and analyzed in terms of cyanmethemoglobin only. In addition polyethylene catheters were implanted in both ureters when the abdomen was opened for implanting the catheters in the renal vessels. The open tips of these ureteral catheters were advanced into the renal pelves, and like those in the renal vessels they were led out of the body through

TABLE I. Renal Arteriovenous Differences in Hemoglobin Concentration Measured as Cyanmethemoglobin. A negative value indicates an arteriovenous increase.

Animal No.	Before diuresis (g %)	During diuresis (g %)
1	.73	.08
2	.73	.23
3	.19	.10
4	.00	.10
5	−.05	−.12
6	.26	.08
7	.94	−.06
Mean	.40	.073
S.E.	±.15	±.035
P from the distribution of t	.05–.02	.10–.05

stab wounds. A polyethylene catheter was also implanted in an external jugular vein. A first pair of renal arterial and venous samples was taken some 10-15 minutes after the laparotomy had been closed and the subject had been heparinized. An infusion of 500 ml of a 10% aqueous solution of mannitol was then given through the catheter in the jugular vein. This required a considerable part of an hour. A second pair of renal arterial and venous samples was taken 20-30 minutes after this infusion had been completed.

Results and discussion. At the time the first pair of blood samples was taken, the flow of urine from the ureteral catheters amounted to only an occasional drop; when the second pair was taken, it had increased to several drops per second. The renal arteriovenous differences in the apparent hemoglobin concentration are given in Table I. The arteriovenous reduction that preceded diuresis diminished during diuresis 0.33 ± 0.15 g% (mean and standard error), for which the value of P from the distribution of t is 0.05-0.02. This would appear to indicate that diuresis tends to eliminate the observed renal arteriovenous reduction in the concentration of whatever is measured as cyanmethemoglobin in accord with the expectation mentioned in the introduction.

Summary. Diuresis tends to eliminate an arteriovenous reduction in the apparent concentration of hemoglobin measured as cyanmethemoglobin.

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Mediation of Aldosterone Induced Anti-Natriuresis *via* RNA-Synthesis *de novo.** (31834)

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Numerous reports have indicated that the effect of aldosterone on sodium transport, both *in vitro* and *in vivo,* is mediated *via* DNA directed synthesis of RNA(1-5). The effect of aldosterone on sodium transport in the isolated toad bladder(1) and the rat kidney(5) was found to be accompanied by elevated levels of intracellular RNA. In both preparations the stimulation of sodium transport and the increase in levels of RNA were blocked by prior administration of actinomycin D(1,5). When the isolated toad bladder was employed to examine these effects chronologically, RNA-synthesis was found to be stimulated 30 minutes prior to any change in sodium transport(2). In this report the effects of aldosterone on RNA-synthesis and renal sodium transport have been investigated, *in vivo,* in the rat as a function of time.

Methods. Orotic acid-6-C^{14} incorporation into RNA. Male rats (Holtzman strain) weighing 95-120 g were adrenalectomized

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