All the patients while edematous showed marked decreases in their plasma volumes, and all except patient no. 4 had decreases in the cell volume as well. The low serum protein concentration in this type of case is well recognized, but the low plasma volume, together with the low serum protein concentration, indicates a greater total loss of plasma protein than has hitherto been suspected. The average amount of serum protein per kilogram of body weight, during the stage of edema, was 2.2 gm. This is about half the amount present in normal children, and agrees with the figure of Linder and others.[3] It is to be noted that, with recovery, the plasma volume returns to normal and that there is an absolute decrease in the plasma volume from that found when no edema is manifest. The amount of plasma per kilo is reduced, if one uses the edema-free weight as well as the weight, during the determination. The figures indicate that the patients of this type usually are suffering from an erythropenia far greater than any red cell count or hemoglobin determination could detect.

The methods used in this study do not give any indication as to whether part of the plasma proteins are removed to other tissues, or whether all the loss occurs by way of the urine. These data would suggest a more frequent use of transfusions than is now practiced, to replace both the plasma proteins and the red cells.

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The influence of posture on renal activity.

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The influence of posture on the renal output of water, bicarbonate, chloride, inorganic phosphate, inorganic sulphate, urea, ammonia, creatinine and titratable acid, on urine pH, on blood pressure, pulse rate, circulation rate and rate of metabolism has been studied. The procedure was as follows: The subject took no

TABLE I.
Averages of all experiments on each subject.

Subject	Posture	Urine cc. per hr.	CO_2 mg. per hr.	NaCl mg. per hr.	P mg. per hr.	S mg. per hr.	Urea N mg. per hr.	Ammonia N mg. per hr.	Creatinine mg. per hr.	Titratable acidity cc. N/10 per hr.	pH	Spec. Grav.
H 8	S	51	5.5	362	14.9	19.6	262	27.4	56.5	6.1	5.4	1.016
	R	185	37.6	862	22.1	26.3	457	28.3	60.5	7.5	6.0	1.009
	per cent increase in recumbent	263	584	138	48	34	75	3	7	23		
D 6	S	50	2.2	296	14.4	18.3	386	32.8	47.7	9.3	5.0	1.015*
	R	103	5.8	468	21.8	22.6	488	25.1	52.8	12.6	5.1	1.012
	per cent increase in recumbent	106	164	58	51	23	26	—23	11	36		
S 4	S	35	3.8	220	18.4	10.2	166	11.7	41.7	6.2	5.6	1.016
	R	155	38.0	603	27.8	16.8	319	11.2	46.8	6.7	6.0	1.006
	per cent increase in recumbent	343	900	174	51	65	92	—4	12	8		
Average increase for all subjects in recumbent		237	549	123	50	41	64	—8	10	22		

*Specific gravity not determined in one standing sample of 11.7 cc.

Each standing figure and each recumbent represents for subject H the average of eight periods, for D of six, and for S of four.

food or water after ten p. m. of the evening preceding an experiment. At eight a. m. he emptied the bladder, discarding the urine, drank 200 cc. of tap water and stood or lay for two hours, at the end of which he voided, drank another 200 cc. of water and lay or stood for another two hour period. At the end of each two hour period he emptied the bladder and drank another 200 cc. of water. The order of lying and standing periods was varied in the various experiments. Each experiment was continued for four consecutive two hour periods. Nine experiments were performed on three subjects, four on subject H, aged 18 years, three on subject D, aged 30, and two on subject S, aged 50. The circulation rate for a ten minute period was determined by Henderson's and Haggard's method[1] in at least one lying and one standing period. During the period of circulation rate determination, ten arterial blood pressure readings were made, using the auscultatory and graphic (Erlanger instrument) methods simultaneously. Each blood pressure and pulse rate figure given in the table is thus the average of ten readings. No food was taken during the experiment and no water except the 200 cc. at the beginning of each period.

The circulation rate, blood pressure and metabolism figures are not presented because of lack of space. In every case the general circulation rate was greater in the recumbent posture and in all the experiments except those on subject S the mean arterial blood pressure was lower in the recumbent. The table gives the averages of the urine data of all the experiments on each subject. The complete data and a discussion of their bearing on the question of the mechanism of renal activity will appear in a later communication. We believe that the variations in the output of water and of the urine solids are in part explained by the view that the changes of posture vary the number of glomerular capillaries exhibiting an active circulation, the number being increased in the recumbent posture.

[1] Henderson, Y., and Haggard, H. W., *Am. J. Physiol.*, 1925, lxxiii, 193.