

base, so that if they have an inhibiting effect, in presence of such chloride, their action on the dye must be different in presence of such salts.

⁷ Addition of different concentrations of sodium chloride to the dye solution at pH 7.9 containing 0.05 M calcium chloride, diminishes progressively the extent of this decrease.

⁸ The conflicting results obtained by various investigators seem to be due to the use of this method.

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On the Experimental Transmission of Arsenic to the Aqueous Humor.

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(Introduced by S. C. Harvey.)

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This investigation is a study of the arsenic content of the aqueous humor after the intravenous injection of neo-arsphenamine in dogs.

Eleven dogs were used. Fifty milligrams of neo-arsphenamine per kilogram of body weight was injected into the jugular vein of each dog. The eyes were anesthetized with cocaine. As much aqueous humor as possible was removed from each eye with a fine bore needle at varying intervals of time after injection. The fluids of the two eyes were pooled in every case. After digestion¹ with acid, a modified Gutzeit method² was used in the determination of the amount of arsenic in the samples.

The details and results are shown in the accompanying table.

TABLE I.

Dog No.	Injection of 50 mg. of neo-arsphenamine per kilogram.							
	Before inject.	After Injection						
	0.5 hr.	1 hr.	2 hr.	4 hr.	8 hr.	24 hr.	48 hr.	96 hr.
1	0	8	20	15		2	0.6	
2	0	7	16	13		2	1	
3		T	24	15		2		
4		T	21	16		1	1	
5			T	9		1.5	0.8	
6				T	2.5	1	0	
7						1	2	0.5
8							1	0
9		T		5		1.5	T	
10		T			2.	T	T	
11		T				T	T	

T represents trace. Results in micromilligrams or arsenic trioxide.

The normal aqueous humor contains no arsenic. Only a trace of arsenic penetrates in the anterior chamber of the eye during the first few hours after intravenous injection of large doses of neo-arsphenamine, and only the smallest measurable amount after 24 hours, representing such a slight increase over the first few hours that it seems of no significance. Paracentesis definitely increases the permeability of the eye to arsenic, even though it be done a half hour *before* injection of the drug. It was found that the amount of arsenic in the aqueous humor of subsequent tapings was less than that in the previous determination. The bulk of arsenic which accumulates after paracentesis apparently disappears within a few hours.

¹ Robertson, G. R., *J. R. Am. Chem. Soc.*, 1921, xlv, 182.

² Allen, W. S., and Palmer, R. M., General Chemical Company.

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Determination of Albumin and Globulin in Urine.

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Albumin and globulin are separated by precipitating the latter with sodium sulfate, as in Howe's¹ technique for plasma protein separation. The separated proteins are determined by the colorimetric method of Autenrieth,² which can be made practical for general colorimetry by introducing pure biuret as a standard. One mg. of biuret gives a color equal to that of 0.924 mg. of urinary proteins treated with alkali and copper sulfate, as described by Autenrieth.²

The standard solution is made by dissolving 0.4 gm. of biuret in water and diluting to 150 cc. Five cc., containing 13.33 mg. of biuret, is colorimetrically equivalent to 12.3 mg. of urinary proteins.

For total protein, enough urine to contain 8 to 20 mg. is precipitated with an equal volume of 10 per cent trichloroacetic acid. The precipitate is redissolved in 3 per cent NaOH, treated at 10 cc. volume with 0.25 cc. of 20 per cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, and compared with 1 cc. of the biuret standard similarly treated.

Globulins are precipitated by treating the urine at 38° with an equal volume of 44 per cent Na_2SO_4 . In the filtrate, the albumin is precipitated with trichloroacetic acid, and determined as described