

as due to the contact of that organ with an abnormally hydrated blood from which the pitressin has largely disappeared.

*Conclusions.* 1. Pitressin, added to blood *in vivo* or *in vitro*, diminishes post-mortal swelling of the normal brain. 2. Pitressin probably disappears from the blood within 45 minutes after subcutaneous injection in rabbits, for brain swelling then becomes augmented. The brain edema previously demonstrated seems to result from the blood hydration which in turn is associated with anuria, and as previous experiments have shown, with loss of water from the skin.

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## Guanidine Content of Blood from Epileptics.

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The guanidine content of blood from 18 epileptic men and 16 epileptic women, representing a total of 47 epileptic seizures, was determined by the nitroprusside method of Marston,<sup>1</sup> as modified by Weber,<sup>2</sup> and Major and Weber.<sup>3</sup> These blood samples were drawn near the termination of the seizures, often before the patient had completely recovered consciousness. As all of the epileptic subjects were institutional patients, blood samples from 9 non-epileptic men and 10 non-epileptic women, also inmates of the same institution, were studied by the same method to provide controls against the diet and routine institutional life of the epileptic patients. The blood guanidine data have been summarized in Table I.

From the table the high guanidine content of the blood from these epileptics in seizures is evident. The maximum blood guanidine found in the samples from the non-epileptic cases was 0.48 mg. per 100 cc. of blood, (individual data not presented in detail here), which value was exceeded in 29 of the 47 epileptic cases. The average blood guanidine for the non-epileptics was near 0.2 mg. per 100 cc., which is slightly higher than the average from the non-hypertension cases presented by Major and Weber<sup>3</sup>

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<sup>1</sup> Marston, Austral, *J. Exp. Biol. Med. Sci.*, 1924, **1**, 99.

<sup>2</sup> Weber, *Proc. Soc. Exp. Biol. and Med.*, 1927, **24**, 712.

<sup>3</sup> Major and Weber, *Arch. Int. Med.*, 1927, **40**, 891.

TABLE I.

Guanidine mg. per 100 cc.	Blood samples from epileptics in seizure			Blood samples from non-epileptics		
	Men	Women	Total	Men	Women	Total
0		1	1	1	6	7
.09	2	1	3		1	1
0.1—0.19	1		1	2	1	3
0.2—0.29	2		2	1	1	2
0.3—0.39	6	3	9	3		3
0.4—0.49	3		3	2	1	3
0.5—0.59	8		8			
0.6—0.69	3		3			
0.7—0.79	5	1	6			
0.8—0.89		2	2			
0.9—0.99	1		1			
1.0—1.09		1	1			
1.1—1.19		3	3			
1.2—1.29		2	2			
2.15		1	1			
2.22		1	1			
No. of cases	31	16	47	9	10	19

but is much the same as the normals given by Traut and MacFate.<sup>4</sup> Regardless of the actual value of normal blood guanidine, all but 4 of the 47 epileptic cases had higher blood guanidine than the average of 0.2 mg. per 100 cc. of the comparable non-epileptic cases from the same institution.

While it is not possible to go into the clinical histories of these cases here, neither hypertension nor nephritic conditions, which have been correlated by Major and Weber<sup>5</sup> in certain subjects with high blood guanidine, were found in any of the epileptic subjects reported here.

The finding of high blood guanidine near the end of the epileptic seizures does not, of course, give guanidine a causal rôle in epilepsy, but it is suggestive in view of the guanidine findings in parathyroprivia tetany reported by Paton<sup>5</sup> and Ellis,<sup>6</sup> and more recently in general tetany by Traut and MacFate.<sup>4</sup>

<sup>4</sup> Traut and MacFate, *J. Am. Med. Assn.*, 1931, **96**, 266.

<sup>5</sup> Paton, *et al.*, *Quart. J. Exp. Physiol.*, 1916, **10**, 315.

<sup>6</sup> Ellis, *Biochem. J.*, 1928, **22**, 931.