TABLE I.
Data for Constructing Charts Showing Relationship Between Density and the Ash, Organic, and Water Contents of Calcified Tissues.

Function	Organic	Ash	Water
$\Sigma(y)$	67.636	142.315	55.406
$\Sigma(xy)$	121.424	282.530	85.093
a	+0.168	—1.461	+1.103
b	+0.157	+1.378	—0.427

x = abscissa (density).
y = ordinate (mg/mm³).

$$a = y \text{ intercept (at } x = 0) = \frac{\Sigma(x) \cdot \Sigma(xy) - \Sigma(x^2) \cdot \Sigma(y)}{|\Sigma(x)|^2 - n\Sigma(x^2)}$$

$$b = \text{slope of line (Tan } \theta) = \frac{\Sigma(x) \cdot \Sigma(y) - n\Sigma(xy)}{|\Sigma(x)|^2 - n\Sigma(x^2)}$$

Σ = Sum.
$\Sigma(x) = 265.463$.
$\Sigma(x^2) = 486.419$.
$n = 155$.

Methods. The density of 145 samples of dentin, normal and in varying degrees of decalcification, and 10 samples of beef bone was determined while wet.[4] Ash, organic and water determinations were then made on each sample.[5] The data were treated by the method of least squares[6] and the necessary values (a,b) for construction of the charts recorded in Table I. It must be remembered that "a" is the y intercept at x 0.

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Effect of Electrically Induced Convulsions on Vago-Insulin and Sympathetico-Adrenal Systems.*

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The influence of electrically induced convulsions on the vago-insulin and sympathetico-adrenal systems was studied by determining the blood sugar of normal, adrenalectomized,† adrenalectomized-

[4] Deakins, M. L., and Manly, R. S., *J. Dent. Res.*, 1939, **18**, 557.

[5] Manly, R. S., and Deakins, M. L., *J. Dent. Res.*, 1940, **19**, 165.

[6] **Gortner, R. A.**, and Gortner, W. A., *J. Gen. Physiol.*, 1934, **17**, 332.

* Aided by a grant from the John and Mary R. Markle Foundation and W.P.A. Project 30278.

† This term is used for the sake of brevity. As a matter of fact the adrenal cortex was left intact.

vagotomized, and vagotomized rats. The secondary of a General Electric Variac whose primary was connected to the 110 V. 60 c.p.s. line was set at 40 volts and used as a stimulus for 0.5 and 5 seconds respectively. When the voltage was applied for 5 seconds it was timed with a clock, in the case of the 0.5 second application an automatic relay switch was used. Two paper clips clamped to the shaved skin over the skull served as electrodes. Blood samples were taken before and at various intervals after the convulsions. The stimulus produced regular convulsions in each instance in which first a flexor phase predominated which was then followed by tonic extension of the extremities. During the application of the stimulus urination usually occurred. The righting reflex returned by the end of the second minute but even after that time a state of catalepsy was observed for several minutes. Table I shows the effects of these convulsions on the blood sugar in the 4 groups of animals. Vagotomized and normal animals show a hyperglycemic response which is greater in the former. This seems to indicate that both vago-insulin and sympathetico-adrenal systems are stimulated during convulsions, an effect which is similar to that of metrazol.[1] Moreover, the experiments indicate that the effect on the sympathetico-adrenal system predominates over that of the vago-insulin system. These conclusions are confirmed by the fact that the elimination of the sympathetico-adrenal system by demedullation of the adrenals makes the effects on the vago-insulin system manifest as evidenced by the hypoglycemia resulting from the convulsions in the adrenalectomized animals. If the interpretation is correct that the adrenal medulla and the Islands of Langerhans are stimulated only via the sympathetics and the vagus respectively, no significant changes in blood sugar are expected in animals in which the vagi were cut below the diaphragm and the adrenals demedullated. The table shows that this is indeed the case.

TABLE I.
Effect of Convulsions Produced by Electric Shock of 0.5 sec. Duration on the Blood Sugar of Rats.

	Blood sugar in mg% (avg of 6 animals)			
	Before convulsions	After convulsions		
		10 min.	40 min.	70 min.
Controls	74.3	88.4	101.1	82.4
Adrenalectomized	63.4	55.5	43.5	64.4
Adrenalectomized-Vagotomized	66.0	67.9	65.0	66.4
Vagotomized	83.8	100.1	110.5	102.6

[1] Feldman, J., Cortell, R., and Gellhorn, E., *Am. J. Physiol.*, 1940, **131**, 281.

Summary. Electrically induced convulsions produce a hyperglycemia in the normal, a hypoglycemia in the adrenalectomized rat, and no change in blood sugar in adrenalectomized-vagotomized animals. This is interpreted to mean that the convulsions excite both the sympathetico-adrenal and vago-insulin systems. The effect on the former predominates over that on the latter. If a normal animal the vagi are cut below the diaphragm and therefore the secretion of insulin can no longer be controlled by the vagus, it is found that the hyperglycemic response is greater than in control animals in which the vagi are intact.

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Blood Volumes in Hypertensive Partially Nephrectomized Rats.*

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Most clinical investigators have found no parallelism between hypertension and blood volume.[1] Dogs with experimental renal hypertension produced by the Goldblatt procedure[2] have normal cardiac output[3] and normal blood volume.[4, 5] Griffith and Ingle[6] believe that they have demonstrated an increased blood volume in hypertensive partially nephrectomized rats.

In the present study it is shown that the blood volume is not a factor in the maintenance of an increased blood pressure in partially nephrectomized rats.

Methods. Male rats of Wistar strain, subjected to partial nephrectomy,[7] after a period of 3 to 4 months following operation, were

* Supported by a grant from the John and Mary R. Markle Foundation.

† Nemours Foundation Fellow.

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4 Holman, D. B., and Page, I. H., *Am. Heart J.*, 1938, **16**, 321.

5 Gibson, J. G., and Robinson, R. W., PROC. SOC. EXP. BIOL. AND MED., 1938, **39**, 497.

6 Griffith, J. Q., and Ingle, D. W., PROC. SOC. EXP. BIOL. AND MED., 1940, **44**, 538.

7 Chanutin, A., and Ferris, E. B., Jr., *Arch. Int. Med.*, 1932, **49**, 767.