The effects of alternate suction and pressure on the rate of cooling of an extremity previously warm are shown in Table I. With the right, or control, leg in a slightly warmer environment the left leg was exposed to suction and pressure for 22 to 58 minutes while the extremities cooled. The right toes cooled rapidly (Table I) while the left toes cooled more slowly, remaining from 1.4 to 4.5°C. warmer. The temperature of the aluminium box was always lower than that of the control box. The air in the aluminium box was moving whereas that in the control box was still. The left extremity was slightly congested by the rubber cuff while the right was not. All of these factors would favor more rapid cooling of the left extremity but nevertheless the left extremity remained definitely warmer as long as suction and pressure were continued. In view of control experiments it is believed that this was due to increased blood flow produced by the alternating periods of suction and pressure.

The practical value of this method of increasing blood flow is to be tested in patients with obliterative structural disease of the arteries of the extremities. It is possible that improved circulation accompanied by repeated distention of those blood vessels which are not entirely rigid due to organic disease may favor the development of collateral circulation and may thus delay or prevent the advance of threatened gangrene.

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Incidental Hyperguanidinemia in Dogs in Parathyroid Tetany.

W. RAY BRYAN AND A. S. MINOT. (Introduced by W. E. Garrey.)

From the Departments of Physiology and Pediatrics, Vanderbilt University School of Medicine, Nashville, Tennessee.

In the course of studies of the chemical composition of the blood to determine the relative importance of certain variations which may contribute to the picture of tetany following parathyroidectomy the guanidine concentration has been determined. The interest in guanidine bases originated in the work of Paton and collaborators[1, 2] who believed that guanidine accumulated as a result of parathyroid deficiency and was the cause of parathyroid tetany.

[1] Paton, D. N., and Findlay, L., *Quart. J. Exp. Physiol.*, 1916, **10**, 318.

[2] Paton, N., *Edinburgh Med. J.*, 1924, **31**, 541.

TABLE I.
Blood Guanidine Determinations in Different Dogs before Parathyroidectomy and During Tetany.*

Blood Guanidine, mg. per 100 cc. Before Oper.	Tetany	Blood Guanidine, mg. per 100 cc. Before Oper.	Tetany
——	0.37	0.45	0.72
——	0.43	0.45	0.62
——	0.41	0.44	1.00
——	0.37	0.36	0.37
——	0.40	0.37	0.61
——	0.90	0.39	0.43
——	0.84	0.33	0.87
——	0.34	0.38	0.43
0.37	0.46	0.37	0.80
——	0.46	0.33	0.37
——	0.56	0.37	0.58
——	0.75	0.42	0.38
0.37	0.40	0.39	0.42
——	0.80	0.41	0.81

* Experiments performed between January, 1931, and March, 1932.

The method we used for the determination of guanidine was that of Major and Weber,[3] with minor adaptations as described by Minot and Dodd.[4] Our results on 28 parathyroidectomized dogs are shown in Table I. Although in some instances the guanidine was not determined in the blood before operation the figures which are presented on normal dogs are within the limits of 0.35 to 0.45 mg. per 100 cc., which we have found to be the normal range as determined by this method in a large number of dogs. The results in the column marked "tetany" were obtained on samples of blood drawn when the symptoms were of varying intensity. Some were taken at the onset of symptoms, some during mild tetany and others during severe general convulsions. About 50% of the dogs in this series show an increase in blood guanidine. The rest, although showing equally typical and severe symptoms of tetany, had no significant increase in guanidine. Hyperguanidinemia, therefore, cannot be the basic cause of parathyroid tetany.

The vast amount of work which has been reported in the literature indicates clearly that parathyroid tetany results primarily from a disturbance in calcium metabolism. Furthermore the only known function of the parathyroid glands is their rôle in regulating the calcium metabolism in the body. However, from what is known of the toxicology of guanidine[5, 6] and the antagonism between the

[3] Major, R. H., and Weber, C. J., *Johns Hop. Hosp. Bull.*, 1927, **40**, 87.
[4] Minot, A. S., and Dodd, K., *Am. J. Dis. Child.*, in press.
[5] Frank, Stern, and Nothmann, M., *Z. f. d. ges. exp. Med.*, 1921, **24**, 341.
[6] Paton, N., *Glasgow Med. J.*, 1925, **104**, 297.

action of this toxic base and that of a calcium salts[7, 8] it is likely that guanidine when its concentration in the blood is appreciably increased tends to increase the severity and hasten the onset of tetany.

Experiments which demonstrate this relationship and show the conditions under which the incidental hyperguanidinemia occurs will be reported subsequently.

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The Hydrogen-ion Concentration and Buffer Capacity of Oyster Liquor of the Chesapeake Bay.

JOHN C. KRANTZ, JR. (Introduced by E. Uhlenhuth.)

From the Bureau of Chemistry, State of Maryland Department of Health.

The hydrogen-ion concentration of oyster liquor is determined in the routine examination of oysters as a measure of the stage of decomposition.[1] A range of hydrogen-ion concentration has been established for "Good Oysters" between pH 6.25 and 7.00 (cresol red indicator). Stale oyster liquor and slightly sour oyster liquor exhibit a higher hydrogen-ion concentration. KoKubo[2] studied the pH of the blood and pericardial fluid of the *Ostraea circumpicta* and found the former to be pH 7.24 and the latter pH 7.16.

The purpose of this investigation is to determine the pH and buffer capacity of the fresh oyster liquor of *Ostraea virginica* from the Chesapeake Bay and to study their variations in different natural environments.

Experimental. The oysters were collected during the winter months and preserved at a temperature not exceeding 5°C. The determinations were made at a period not exceeding 12 hours after collection. The sea water was taken from above the oyster beds at the time the oysters were collected.

The hydrogen-ion concentration determinations were made immediately after the liquor was taken from the shell. The determinations were carried out on the composite liquor of at least 12 oysters.

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[7] Kühnau, J., and Nothmann, M., *Z. f. d. ges. Exp. Med.*, 1924-5, **44**, 505.

[8] Minot, A. S., and Cutler, J. T., *J. Clin. Invest.*, 1928, **6**, 369.

[1] Hunter, A. C., and Linden, B. A., *Am. Food J.*, 1923, **18**, 538.

[2] KoKubo, Seiji, *Science Repts., Tohoku Imp. Univ.*, 4th series, 1929, **4**, 207, through *Chem. Abs.*, 1929, **23**, 4274.