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The quantitative determination of the alkali retention in growth.

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In a report made last year[1] on acid base metabolism in infants, a method was proposed for measuring the retention or the loss of alkali in the body. The method consists in determining the equilibrium or balance of all the acid and basic radicals. The values are computed in terms of normal solutions and the excess of base retention or excretion can then be stated in terms which are a common denominator for all of the elements in mineral metabolism. It is necessary to determine the acids and bases in the food, urine and feces. The results calculated in terms of normal solutions are then totaled.

By suitable methods of titrating the urine and stools, approximately the same values are obtained as by the method of analyzing the individual elements. The work will be reported in extenso in a forthcoming number of the American Journal of the diseases of Children, including methods and protocols.

The metabolism experiments show that for an infant, A, weighing 9 kilos, and one, B, weighing 5½ kilos, fed on cow's milk, water and sugar, the positive base balance, as shown in the accompanying figure, was 98 c.c. 0.1N alkali in excess of acid and 64 c.c. 0.1N alkali in excess of acid. Calculated on the basis of alkali retained per kilogram of body weight, this equals 11 c.c. O.1N alkali retained per day in both cases.

	A	B
Intake	—255 c.c 0.1N	—211 c.c. 0.1N
Output	—157	—147
+ base balance or base retained	98	64

A recalculation of the available data in the literature confirms our results. This appears to be a very large amount of base

[1] Shohl, Alfred T., Acid Base Metabolism in Infants, *Journal Biological Chemistry*, 1922, xxxvi, 50.

retention per day. However, when the values are computed it is found that of this alkali retained, 2 c.c. is required for the protein increase, 4 c.c. for the alkali reserve and about 57 c.c., by far the greatest part, for the building of bone.

The effect of acids and alkalis added to the diet has also been studied. When 250 c.c. of 0.1N HCl was given baby A he retained 67 c.c. of alkali in excess of acid. When 4 grams of sodium bicarbonate, equivalent of 473 c.c. of 0.1N alkali was given to baby B he retained 114 c.c. of base in excess of acid. This is a quantative measure of the effect of acidosis and alkalosis in relation to alkali retention and growth.

It is hoped that studies of this type now being pursued will yield further information on the problems of growth, nutrition and normal and pathological mineral metabolism.

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On the effect of certain drugs, notably quinine, on the acuity of hearing.

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The purpose of this investigation was to determine the degree of deafness following the administration of quinine and also to ascertain, if possible, whether or not the tinnitus which accompanies this intoxication has any appreciable effect on the acuity of hearing at any and all pitches. While these experiments were under way the writers found that Macht, Greenberg and Isaacs had published a similar investigation in reference to antipyretics. It was thought desirable, for reasons which will appear later, to check on the results obtained by these writers. The quantitative tests submitted in this paper were all made by Kranz[1] with a thermophone provided with a new frequency vari-

[1] Kranz, F. W., *Phy. Review*, 1921, xvii, 384