the diet. Satisfactory technique has not yet, however, been perfected, so that it is possible to know, in the later stages of the nursing period, to what extent the nurslings are deriving their nourishment from the mother's milk and to what extent their daily nutritional requirements are being supplemented by the maternal diet which is accessible to them. For such reasons, we frequently encounter irregular results in biochemical studies of avitaminotic rats during lactation. A summary of all the results discloses that in vitamin B deficiency there is generally a relative lymphopenia and corresponding polymorphonuclear leucocytosis in the lactating albino rat and nursing young, and, while in some groups a *specific* effect of vitamin B deficiency on such changes was apparent, in the majority of cases this was due to great losses of weight associated with inanition. No noteworthy changes were observed in the monocyte, eosinophil or basophil counts.

6413

Comparison of Bone Ash of Rachitic Rats Treated with Viosterol and with Phosphate Ion.

C. A. LILLY. (Introduced by L. H. Newburgh.)

From the Department of Internal Medicine, Medical School, University of Michigan.

A group of 21 albino rats, 28 to 30 days old, were placed in individual cages and fed Steenbock's rachitogenic Diet No. 2965, *ad lib.* Twenty-eight days later they were found to have X-ray evidence of florid rickets. They were then divided into 3 groups of 7 rats each.

GROUP I. Diet not changed. This was the control group.

GROUP II. Diet modified as follows: 0.3 gm. Viosterol (potency 250 D) was thoroughly mixed through 50 cc. of boiled, but partially cooled Crisco, which was in turn thoroughly rubbed into each 950 gm. of the Steenbock Diet and fed *ad lib.* This amount of Viosterol provided the animal with an equivalent of 3% of cod liver oil in the diet.

GROUP III. Diet not changed, but each day each animal was given 1 cc. of a solution of 43.4 gm. Na_2HPO_4, 12 H_2O, in 500 cc.

distilled water.* One cc. of this solution contains the phosphorus equivalent contained in 10 gm. of the Steenbock Diet No. 2965 plus 0.4% K_2HPO_4. We assumed that each rat ate 10 gm. of diet daily. Hess[1] states that the addition of 0.4% secondary phosphate prevents rickets when added to a rachitogenic diet.

The animals were all confined in a dark room, the drinking water being distilled.

The animals all lived, but one rat in Group I and one in Group II lost weight and were discontinued as test rats.

The respective diets of each group were continued for 28 days, when all the animals were killed, the femurs removed, cleaned, weighed and ashed.

RESULTS:

Group I. Bone ash, % of wet weight = 28
Group II. Bone ash, % of wet weight = 45
Group III. Bone ash, % of wet weight = 45

The importance of an adequate mineral supply in the reconstruction of rachitic bones has not been sufficiently stressed in the past. It is demonstrated that the addition of Na_2HPO_4 in adequate amounts to a low phosphorus rachitogenic diet produces a bone ash comparable to the bone ash produced by adding pure vitamin D to such a diet.

6414

Failure to Produce Dental Caries with High Carbohydrate, and with Extremely Low Fat Diets.

C. A. LILLY AND J. D. GRACE. (Introduced by L. H. Newburgh.)

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A. It is frequently stated that a high carbohydrate diet tends

* The Na_2HPO_4 was given as follows: Each rat was removed from the cage, the thumb and index finger of the left hand firmly, yet gently, grasping the skin of the nape of the neck, while the ring and middle finger secured the fore legs. The rat was thus securely held with its back in the palm of the left hand. The solution of Na_2HPO_4 was then introduced drop by drop well back in the rat's mouth by means of a one cc. curved medicine dropper held in the right hand. This procedure requires much kindness and patience, and often as long as 15 minutes are consumed in getting 1 cc. of fluid "down" the rat.

[1] Hess and Unger, *J. Biol. Chem.*, 1922, **50.**