

well for 20 to 30 days only. When this diet was supplemented with an extract containing vitamin B<sub>1</sub>, prepared by the method of Seidell,<sup>3</sup> growth was resumed. Similar results were obtained using autoclaved liver. These experiments demonstrated that the limiting factor in liver was vitamin B<sub>1</sub> and that the liver was rich in vitamin B<sub>2</sub>.

The purified diet supplemented with liver or yeast was lacking in some essential growth factor. Female rats on the mixed stock diet averaged 179 gm. in weight when 120 days of age and were still increasing in weight (Table I). Female rats on the purified diet reached an average maximum weight of 150 to 160 gm. after 90 days (when 120 days of age). Approximately the same results were obtained by supplementing the basal diet daily with 0.5 gm. of yeast, or with 1.0 gm. of yeast, or with 0.15 gm. of yeast plus 0.5 gm. of liver. These rats resumed growth when changed to the stock diet. The use of commercial casein has uniformly resulted in improved but subnormal growth. Our results differ from those of Evans and Burr,<sup>2</sup> who obtained normal growth by the addition of liver and yeast to the fat-free diet and also from those of Palmer and Kennedy,<sup>4</sup> who recently reported excellent growth following the addition of yeast alone to this same basal diet.

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### Calcium and Phosphorus Studies in a Case of Clinical Hyperparathyroidism.

GENEVIEVE STEARNS AND J. D. BOYD.

*From the Department of Pediatrics, State University of Iowa.*

The subject of this study was a boy of 19, with progressing bowing of the legs, and other evidence of bone softening. On admission the serum calcium was 16.8, serum inorganic phosphorus 3.0 mg. per 100 cc. Notwithstanding a high calcium intake, the patient was losing about 0.5 gm. of calcium a day. The urinary calcium was 2 to 3 times the normal output while the fecal calcium nearly equalled the intake. There was a retention of phosphorus but the urinary phosphorus was above normal.

On the basis of the laboratory and roentgenological findings, a clinical diagnosis of hyperparathyroidism with resultant generalized

<sup>3</sup> Seidell, A., *J. Am. Chem. Soc.*, 1922, xliv, 2042.

<sup>4</sup> Palmer, L. S., and Kennedy, C., *Proc. Soc. Exp. Biol. and Med.*, 1929, xxvi, 427.

*osteitis fibrosa*<sup>1, 2, 3, 4</sup> was made. Exploration revealed an adenoma of the left lower parathyroid, which was removed. Just prior to operation, serum calcium was 17.5 mg., serum phosphorus 2.2 mg. per 100 cc.; 18 hours after operation the serum calcium had fallen to 12.3 mg. per 100 cc. It continued to fall, but more slowly, the values for the succeeding days being 10.7 and 8.5 mg. per 100 cc. respectively. The inorganic phosphorus of the serum remained low. From the second to the sixth day after operation a total of 6 cc. of parathyroid extract was given hypodermically.

Ten days after the removal of the adenoma, with the same diet as during the period of pre-operative observation, the patient was retaining about 0.25 gm. of calcium and 0.6 gm. of phosphorus a day. The urinary secretion of calcium had fallen to below normal values; the urinary phosphorus also was decreased, but to a lesser extent. At this time the serum calcium was 5.0 mg., phosphorus 3.0 mg. per 100 cc. Chvostek's sign became strongly positive the second day following operation and remained so for several days; no further signs of tetany were noted.

This study was made possible through the courtesy of the Department of Orthopedics.

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### Dental Caries: Influence of Potential Mouth Acidity.

CATHERINE MAGEE, C. L. DRAIN AND J. D. BOYD.

*From the Department of Pediatrics, State University of Iowa, Iowa City.*

In a previous report, arrest of caries in childhood following the use of high vitamin, high mineral diets was described.<sup>1</sup> In order to determine whether such arrest might be credited to changes in the potential acid-producing power of the oral flora, bacteriological studies have been made before, during and at the completion of arrest of caries. Scrapings were taken from the gingival surfaces of teeth, and placed in tubes containing 3 cc. of isotonic saline; after suspension, 0.5 cc. portions were transferred to each of 3 tubes of

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<sup>1</sup> Mandl, F., *Arch. f. Klin. Chir.*, 1926, cxliii, 245.

<sup>2</sup> Gold, E., *Mitteilungen a. d. Grenzgeb. d. Med. u. Chir.*, 1928, xli, 63.

<sup>3</sup> Barr, D. P., Bulger, H. A., and Dixon, H. H., *J. Am. Med. Assn.*, 1929, xcii, 951.

<sup>4</sup> Stewart, C. P., and Percival, G. H., *Phys. Rev.*, 1928, vii, 283.

<sup>1</sup> Boyd, J. D., and Drain, C. L., *J. Am. Med. Assn.*, 1928, xc, 1867.