Adult male baboons were given an adequate artificial diet to appetite or the same diet without riboflavin or pyridoxine; a further group were pair-fed with those on the deficient diets. In baboons deprived of pyridoxine excretion of xanthurenic acid rose from 5.65 to 59.71 mg/24 h, kynurenine from 0.58 to 3.48, 3-hydroxykynurenine from 7.25 to 10.12 but 3-hydroxyanthranilic acid in urine fell from 2.21 to 2.05 mg/24 h. In those deprived of riboflavin anthranilic acid in urine rose from 2.23 to 50.30 and 3-hydroxykynurenine fell from 7.25 to 0.99 mg/24 h. Pyridine nucleotides in erythrocytes fell only in baboons deprived of pyridoxine, and 11-hydroxycorticosteroids rose only in those deprived of riboflavin.