Absorption of calcium by premature infants using a stable isotope. D. Bartrrop and A. Sutton. (St. Mary's Hospital Medical School, London W.2.) Tracer investigations can be done in human infants or children without exposure of the subject to ionizing radiation. This paper reports the first application of stable 46Ca as a marker for the measurement of calcium absorbed in bottle-fed newborn premature infants. A trace amount of calcium enriched in 46Ca is administered to the infant as a solution of the chloride mixed with a normal feed. After the feed, urine and faeces are separately collected and specimens of blood obtained. The 46Ca content of the samples is estimated by means of neutron activation analysis. The results obtained with this technique have been compared with conventional metabolic balance studies.

Effect of diet on water intake and urinary solute concentrations in infants. L. S. Taitz. (Department of Child Health, Children's Hospital, Western Bank, Sheffield S10 2TH.)

Circadian variation in plasma 17-hydroxyprogesterone in patients with congenital adrenal hyperplasia. Shelia M. Atherden, N. D. Barnes, and D. B. Grant (introduced by June K. Lloyd). (Division of Infant Development, Clinical Research Centre, Watford Road, Harrow, Middx.) (Page 602 of this issue.)

Defective aldosterone synthesis: 18-hydroxylase defect. Anne E. McCandless and William Hamilton. (Royal Hospital for Sick Children, Yorkhill, Glasgow.)

Studies on hydronephrosis. M. H. Winterborn (introduced by R. H. White). (Children's Hospital, Birmingham.) Papillary necrosis is rarely diagnosed in human hydronephrosis and then only in association with acute infection. On the other hand, animal experiments, particularly those of Hodson and his colleagues with the pig, have suggested that this complication may commonly cause the anatomical changes of hydronephrosis.

In the course of a retrospective study of hydronephrosis in children's kidneys at the Queen Elizabeth Hospital for Children, Hackney, an attempt was made to discover the frequency of papillary necrosis. The methods used were naked eye inspection, microdissection and counting of the number of ducts opening into each minor calyx using the dissecting microscope. Papillary necrosis was thought to have occurred in 3 out of 63 kidneys but was apparent to the naked eye in only one. There was good evidence that all three kidneys had been infected. With increasingly severe hydronephrosis there is a tendency for the duct count to rise and for the openings to become scattered over the surfaces of the papillae. This is interpreted as evidence of distortion of the kidney and it is suggested that 'back pressure distortion' rather than obstructive atrophy would be a more accurate, if less euphonious descriptive term for the radiological changes of hydronephrosis.