renal papillae, suggesting that the original radiological changes were due to acute renal papillary necrosis. Exactly similar urographic changes were seen in rats in which renal papillary necrosis was induced experimentally by injection with ethyleneimine.

Systolic blood pressure measurement in newborn with transcutaneous doppler. Rebecca Kirkland (*introduced by Leo Stimmler*) (*Department of Paediatrics, Guy's Hospital, London*). Blood pressure determinations have been obtained in neonates with a transcutaneous Doppler apparatus. The instrument operates on the principle of the Doppler effect. 56 neonates at Guy's Hospital were studied to establish normal systolic blood pressure values for this technique. Comparisons were made with measurements obtained by other methods. The results indicate that the transcutaneous Doppler apparatus provides a rapid and accurate method for measuring blood pressures in infants.

Growth hormone levels with exercise. John Buckler (*introduced by Dick Smithells*) (*Department of Paediatrics and Child Health, 27 Blundell Street, Leeds*). Exercise has been shown by many workers to be a stimulus to growth hormone release. This effect is more obvious in women than in men, and women also show greater responses to many other stimuli and more frequent spontaneous fluctuations in serum growth hormone levels. Exercise studies have, therefore, been conducted in a normal healthy man (aged 35 years) in whom the effect of other influences on growth

hormone output during the experiments could be considered to be minimal.

Exercise was performed on a cycle ergometer and serum growth hormone levels were estimated on blood samples taken by indwelling intravenous needle during the course of the exercise and the subsequent hour. The subject was fasted and the studies were started about 9.30 a.m. on different days with a standardized experimental procedure, to compare the effect of different degrees and duration of exercise.

Serum growth hormone levels started to rise about 10 minutes after extreme exercise of short duration, and reached a high peak about 25 minutes after the start of the exercise. However, with mild continuous exercise, no rise in serum growth hormone levels was found for over 40 minutes but then a gradual progressive rise ensued as long as the exercise continued (e.g. 2 hours) but the values instantly started to fall when exercise was stopped. Degrees of exercise between these extremes produced intermediate responses in growth hormone output, but if moderate exercise of sufficient severity was continued for long enough, a plateau in the serum growth hormone levels resulted which was maintained until the exercise ceased.

These findings suggest that the output of growth hormone is dependent on some effect of exercise which is cumulative. This factor needs to reach a critical level for growth hormone response to be initiated, and the magnitude of the ultimate response and the speed at which it is achieved are dependent on the severity of the exercise.