considerable increase in the excretion of certain unidentified iodoplatinate reacting compounds in the first 6-hour urine. When plasma homocyt(e)ine level was high, cyst(e)ine levels after the load were significantly lower than those when homocyst(e)ine was much reduced following administration of betaine.

The results suggest that when plasma homocyt(e)ine and methionine are raised, the low levels of cyst(e)ine are due to the incorporation of a very significant proportion of dietary cyst(e)ine into homocysteine-cysteine-disulphide and other sulphur compounds (as yet unidentified) which are derived from homocyst(e)ine or methionine.

Temporary tyrosinosis. Douglas Pickering and Brian Bower (*Radcliffe Infirmary Oxford*). A term baby started to vomit at 4 weeks of age and on admission one week later was in hepatocellular failure with haemorrhage from hypoprothrombinaemia. Large amounts of tyrosine in the urine led to the diagnosis of tyrosinosis and treatment with a low phenylalanine, low tyrosine diet for 15 months (though increasing amounts of tyrosine had been introduced towards the end of the period). Initial complications were (1) oedema from hypoalbuminaemia, (2) drowsiness and apathy from hypermethioninaemia after starting the diet, and later (3) failure to gain weight due to a too drastic tyrosine reduction.

The special diet was finally abandoned at the age of 16 months with no complications. When last seen at 3 years 4 months he was normal.

A subsequent sib showed no clinical or biochemical features of tyrosinosis.

Urinary excretion of immunoglobulin E. T. M. Barratt, M. W. Turner, and S. G. O. Johansson (*Department of Immunology, Institute of Child Health, London W.C.1, and The Blood Centre, University Hospital, Uppsala, Sweden*). Immunoglobulin E (IgE) was measured by the radioimmunosorbent technique in sera and urine concentrates of healthy individuals. The urine: plasma ratio of IgE exceeded that of albumin about thirtyfold. As IgE is a considerably larger molecule and would not be expected to cross the glomerular basement as easily as albumin, the data suggest that most urinary IgE does not derive from glomerular filtration but is of local origin within the urinary tract.

If this were so, the urinary excretion of IgE would be independent of the plasma IgE concentration and perhaps also of the alterations in glomerular permeability of the nephrotic syndrome. Urinary IgE excretion rates were therefore measured in individuals with the nephrotic syndrome and in patients with atopic eczema characterized by the very high levels of plasma IgE. The results did not differ from those observed in healthy individuals, and provide further support for the hypothesis that most urinary IgE is locally secreted.

Maintenance of breathing in newborn lamb. P. Johnson, G. S. Dawes, and J. S. Robinson (*introduced by P. M. Dunn*) (*Nuffield Institute for Medical*

Research, Oxford). It has been considered by many that the immersion of the fetus in liquid inhibits respiration. Our experiments show that the fetal lamb with a tracheostomy can establish respiration and that the newborn lamb will maintain respiration when immersed in normal saline but not in water. Likewise in 8 newborn Cheviot lambs under 24 hours of age amniotic fluid, tracheal fluid, and sheep's colostrum do not arrest respiration when introduced into the upper airway, while glucose solutions and cow's milk do. If one of these inhibitory agents remains in the upper airway, then apnoea continues, P_{aO_2} falling to fetal level and P_{aCO_2} rising in excess of 150 mm of mercury the lamb dying in 35–40 minutes.

Cheviot lambs (8) over 48 hours of age and ewes demonstrated exactly the same discrimination between water and saline as described. However they showed 'breakthrough' of respiration after only transient apnoea.

Localization experiments place the site of the receptor at the entrance to the larynx. The use of a variety of chemical solutions suggest the receptor to be a chemoreceptor, possibly a taste receptor. Superior laryngeal nerve section (bilateral) abolished the discrimination between these agents, and apnoea did not occur.

However, of 9 Dorset lambs under 24 hours of age, 8 showed 'breakthrough' breathing with water in the upper airway. These lambs all had a good response to hypoxia. Thus this strain appeared to be more mature in these aspects than young lambs of the Cheviot breed. Nevertheless, two Dorset lambs, one over 48 hours of age having shown a good hypoxic response, remained apnoeic with water in the upper airway. Therefore in 4 Dorset lambs already shown to have a good hypoxic response the carotid bodies were inactivated, removing the response to hypoxia but not affecting the response to water and saline already demonstrated.

We confirm the presence of a chemoreceptor at the entrance to the larynx; at least part of the reflex pathway is contained in the superior laryngeal nerve. There was considerable individual as well as strain variation in the response. The possible role of such a pathophysiological entity in apnoea of the newborn and so-called sudden death in infancy was discussed.

Pulmonary blood flow in newborn. Robert Dinwiddie and George Russell (*Aberdeen*). Previous workers have described the measurement of pulmonary blood flow in newborn infants using nitrous oxide as the indicator gas with a single-breath body plethysmographic technique, and using monochlorodifluoromethane ('Freon-22') with a rebreathing technique; the results obtained have correlated well with estimates of cardiac output made by conventional methods.

Using 3% nitrous oxide as the indicator gas, we have studied effective pulmonary blood flow in healthy newborn infants using a rebreathing technique. The results are similar to those obtained by other techniques (mean effective pulmonary blood flow = 167 ml/kg per min (SD 35.7); 2.80 l./m² per min (SD 0.64)). Recirculation proved to be only a theoretical problem;