children and in children with renal disease. More accurate measurement was possible, particularly if a 4-hour specimen was used rather than an overnight 12-hour specimen. However, there are so many variable errors in any method of estimating cell excretion rates, that the method could well be discarded in paediatric practice.

Cell concentration in a random urine specimen is easily estimated, a fresh mid-stream sample being examined in a counting chamber. This test combined with the Hemastix test for blood gives sufficient information for the management of children with renal disease.

Auto-immune Disease in the NZB/B1 Mice

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Since the original description of the inbred NZB/B1 strain of mice by Bielschowsky, Helyer, and Howie (1959), a considerable amount of data have accumulated concerning the auto-immune disease that characterizes this mouse. We, as others, have investigated a possible genetic basis for the disease by hybridization. The results of this study suggest that if there is any genetic mechanism it must necessarily be very complex to account for all the findings in the NZB $\times$ CFW hybrid. An alternative environmental aetiological agent seems more likely. One method of investigating such an agent is the introduction and examination of the NZB/B1 in different environments. The fact that the NZB/B1 still develop their characteristic disease in both the 'specific pathogen free' and 'germ-free' states does not necessarily exclude an infective aetiology. In both situations transplacental passage during the initial introduction of the animals is still possible, and perhaps confirmed by the electron microscopical demonstration of virus-like particles in 'germ-free' NZB/B1. To investigate the transplacental passage of the proposed infective agent, ovum transplantation was successfully performed, and preliminary data were presented upon the effect of nurturing fertilized normal mouse ova to term in the uterus of the auto-immune NZB/B1.

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Genetically Determined Variant in Human β -Lipoprotein

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Bristol

The gene frequency of the Lp(a) variant of human serum β -lipoprotein in a British population sample has been found to be 0.415. Phenotypes positive for Lp(a) may be divided by a radial immunodiffusion method into two groups, the ratio of which fits well with

the expected ratio of homozygotes and heterozygotes according to the Hardy-Weinberg equilibrium. The positive phenotype frequency is lower in the newborn than in adults, but there is no evidence of a maternal influence on the infant's phenotype other than her contribution to the infant's genotype.

Factors Influencing Exposure of Children to Lead

D. Barltrop and N. J. P. Killala
London

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Experience with Use of THAM in the Newborn

Cliff Robertson
London

In the presence of pulmonary disease THAM has a theoretical superiority over sodium bicarbonate in that it not only combines directly with CO_2 in the plasma and promotes its excretion in the urine, but generates bicarbonate ion in the process, without adding sodium ions to the circulation. Adults with a hypercapnic acidosis are, however, known to suffer respiratory depression or even apnoea after its administration.

The use of THAM in newborn babies suffering from respiratory distress has been reviewed over a three-year period. 74 babies who were breathing spontaneously received a dose of the drug, and 15 of these had an episode of marked respiratory depression or apnoea in the two minutes after the injection; 2 of the 15 had cardiac arrests. No apnoea has been seen after sodium bicarbonate administration.

THAM solutions of two strengths (3-6% and 7%) were used. The 7% solution was, in general, used in the sickest, most acidotic babies, and it was noticed that there was a significantly higher incidence of intraventricular haemorrhage in those babies who received 7% THAM.

It has been suggested that early administration of THAM may effect a permanent improvement in the pulmonary hypoperfusion in the respiratory distress syndrome, but similar improvement has been noted in babies receiving sodium bicarbonate.

The theoretical advantages of using THAM must be weighed against the danger of causing apnoea.

Acid-base Studies in Cyanotic Congenital Heart Disease in Infancy

Steve Jordan
Bristol

Serial studies of pH and acid-base state in 52 patients were reported. Metabolic acidosis is common in

cyanotic congenital heart disease in infancy and may be profound. Evidence of CNS and cardiovascular depression are usually found, and prognosis is adversely affected. The intravenous or oral administration of bicarbonate may be helpful as a temporary measure in some patients.

Use of an Accelerometer in Phonocardiography in Childhood

Douglas Pickering
Oxford

A series of phonocardiography records taken in children with various congenital heart defects was shown. These were recorded using an accelerometer which, because of its small size and ease of application, is a useful tool in small children. The instrument may be used to record ultra-low frequency movements and displacement.

Needle Biopsy of Liver in Differential Diagnosis of Obstructive Jaundice in Infancy

Richard White
Birmingham

The differential diagnosis of obstructive jaundice in infancy continues to be a problem. Rare causes, such as cytomegalovirus infection and galactosaemia, can be distinguished by the appropriate tests. Most of the remainder have either biliary atresia or the 'neonatal hepatitis syndrome', and it is customary to perform open biopsy and cholangiography, since liver function tests, including transaminases, do not give clear-cut distinction. Because of the known risks of surgery in hepatitis, an investigation was undertaken to assess the diagnostic reliability of needle biopsy of the liver, as well as its risks.

In a series of 36 infants, the final diagnosis was established on the basis of (1) histological features, (2) laparotomy findings, including cholangiography, and (3) follow-up. Needle biopsy was carried out in all 36. In 25 it was done on the operating table immediately before pre-arranged laparotomy. No instance of serious bleeding was seen. In the remaining patients

laparotomy was performed later, except in one patient who was examined *post mortem*. The histological findings of needle and surgical biopsy specimens were compared 'blind', and found to give almost identical results. Reasons for occasional technical failures were discussed.

It is concluded that, in experienced hands, needle biopsy can play a useful part in the differential diagnosis of obstructive jaundice in infancy.

Depression of Delayed Hypersensitivity: a New Hypothesis

J. Verrier Jones and W. J. Harrison
Bristol

Conditions associated with depression of Mantoux reaction were reviewed. These include measles, influenza, infective hepatitis, and glandular fever. The significance of the negative Mantoux reaction in some cases of sarcoidosis was considered. Patients with sarcoidosis also failed to develop delayed hypersensitivity to chemical allergens such as dinitrochlorobenzene. The usual reason given for this failure is that patients with sarcoidosis are 'immunologically bankrupt'. A hypothesis was proposed linking the facts in sarcoidosis with those in other diseases, and suggesting that depression of delayed hypersensitivity may result from competition between simultaneously administered antigens. Experimental work in guinea-pigs supports this.

Retinal Photography in the Newborn

David Baum
London

The technique of retinal photography was described, with special reference to those difficulties peculiar to the newborn. The appearance of the normal mature and premature fundus was described. A preliminary report was presented of studies on retinal haemorrhage and oxygen-induced vasoconstriction, together with illustrative photographs. The technique of fluorescein angiography of the retina was outlined, and its possible scope in the newborn discussed.