surgical palliation in tricuspid atresia, pulmonary atresia with intact ventricular septum, and mitral atresia. The place of atrial septostomy in the treatment of total anomalous pulmonary venous connexion was not established.

EDWARD HOWARD introduced by Mr. H. H. NIXON (London). 'Internal Anal Sphincter. Observations on Development and Mechanism of Inhibitory Responses in Premature Infants and Children with Hirschsprung's Disease.' To be published elsewhere.

JOHN LORBER (Sheffield). 'Long-term Prognosis of Subdural Effusions in Infancy.' Of 37 consecutive infants suffering from post-traumatic subdural effusions, 34 survived with an average period of observation of 3 years. There were 28 boys. The technique of management consisted of repeated aspirations until the effusions dried up. This was the only treatment necessary in 19 infants, 11 of whom recovered without sequelae.

In 13 infants the effusions failed to clear by this method, and in these a Holter shunt was put into the subdural space draining it into the right auricle. This was satisfactory in 10 infants, and the shunt could be subsequently removed, and 7 of these are normal. Removal of the membrane was only carried out in 7 infants. The indications were based on Ingraham and Matson's earlier observations, but retrospectively these seemed to be inadequate. No child benefited from such a procedure.

Altogether 19 survivors are physically and mentally normal. 4 are moderately handicapped, but 11 are severely handicapped, both intellectually and by physical sequelae. The physical sequelae consist of blindness, spasticity, and convulsions in almost all children. These gross handicaps were not due to the persistence of the subdural effusions, but to the associated brain drainage sustained at the same time as the injury causing the effusion.

Analysis of our data suggests that there is no longer adequate justification for removal of the membrane in subdural effusions, as the effusion frequently persists in spite of it, and less harrowing measures give better results.

HUGH R. BRODIE introduced by PROFESSOR J. P. M. TIZARD (London). 'Measles Vaccine.' Several strains of live measles virus vaccine have been developed, and these differ somewhat in both the immediate post-vaccinal effect on the patients, and the longer term immunological status which they confer. In the Western world the types generally employed are those developed from the original 'Edmonston' strain. These include Edmonston A and B, the further attenuated or 'Schwarz' strain and the various Beckenham strains which have been subcultured in England. The Soviet Union and The People's Republic in China have independently developed their own strains called Leningrad and Peking, which are widely but not universally employed in Public Health programmes in those countries.

Measles virus has been studied at McGill University since 1960. A double-blind trial of four different strains was carried out to study the differences in their clinical reactivity and antigenic properties over a three-year post-vaccinal period.

A. BENTOVIM introduced by PROFESSOR O. H. WOLFF (London). 'Controlled Observations of Phenylketonuric Children on and during Withdrawal from Low Phenylalanine Diet.' There is much controversy about the age when low phenylalanine diet can be withdrawn from PKU children. Marked changes in behaviour are reported with fluctuations in blood phenylalanine levels in PKU children. Systematic assessments were made of these and other parameters on and during controlled withdrawal of low phenylalanine diets from 8 children.

All 8 children (4 boys, 4 girls) had long periods on diet from 4.7 to 14.4 years (average 9.2 years), having started diet from birth (1 case) to 3 years (average 1.9 years). Diet was discontinued from age 6.6 to 16.8 years (average 10.11 years) for a number of reasons. Final intelligence quotient ranged from 40 to 90 (average 68). 3 attended normal school, 4 ESN school and 1 training centre; 2 were about to start work.

Parents were interviewed to obtain details of development and adjustment during the initial 2-4 week period as in-patients; strict dietary control was maintained with regular phenylalanine blood levels. Daily ratings of mood, aggressiveness, activity level, and general behaviour were reliably made by nurses, play-leaders, teachers, and psychiatrists. Psychological assessment and EEG in all were also performed.

During an experimental period of 2-5 weeks timed at random, additional protein was added to the regular diet so that patients and ward staff were unaware of the change.

On diet the behavioural pattern of the 6 younger children tended towards hyperactivity, poor concentration and attention span, excitability, and anxiousness. The two older girls were immature and shy. All children were overdependent, and family reactions of over-protection, anxiety, rejection, and limitation of family life appeared. Many problems appeared to revolve around the administration of an unpleasant and restrictive diet.

After introduction of protein there were general transient changes in previous behavioural tendencies. All children appeared either more aggressive, anxious, or active, but all reversed to previous levels of behaviour in time. Psychological, and EEG assessments also showed no significant change at the end of the period nor after 3-6 months (5 cases).

Follow-up is limited (3-12 months), and to date the most striking change when normal food was introduced finally has been increased emotional maturity, independence, and self-confidence, which followed in all children, and relaxation of general family tension.

Addition of protein to low phenylalanine diets under controlled conditions appears to be a satisfactory method of observing the changes which can be expected

when the diet is finally discontinued, close follow-up being essential over a long period.

V. DUBOWITZ (Sheffield). 'Nerve Conduction Velocity—An Index of Neurological Maturity of the Newborn.' The conduction velocity of the ulnar and posterior tibial nerves has been measured in premature ('short gestation'), dysmature ('small for dates'), and full-term infants. 5 sets of twins were also included. The procedure is a relatively simple one and well tolerated even by newborn small premature infants. It is not influenced by factors such as state of sleep, or time after feed.

Sequential measurements have also been made in premature infants, and the conduction velocity attained at 40 weeks' post-conceptual age compared with the conduction velocity of full-term newborn infants.

There is a highly significant correlation between the motor nerve conduction velocity and gestation. The velocity increases with gestational age. In the twin studies there was no correlation of conduction velocity with weight at constant gestation.

'Small for dates' babies can be readily distinguished from premature infants of similar weight. Sequential studies on the same infants suggest that the rate of increase of conduction velocity after birth may be faster than *in utero*, but the differences are not statistically significant.

Studies in premature infants show that the conduction velocity of the premature infant at 40 weeks' post-conceptual age is significantly lower than that of the full-term newborn infant, suggesting a slower rate of maturation in premature infants.

Nerve conduction velocity is a useful parameter for assessing neurological maturity of the newborn infant for distinguishing premature from dysmature infants. Further data may also provide an accurate estimate of gestational age.

R. H. R. WHITE (Birmingham). 'Hypocomplementaemia and Progressive Glomerulonephritis.' A study of renal biopsy specimens obtained from patients showing clinical features of both the *nephrotic syndrome* and *nephritis* (i.e. haematuria, renal insufficiency and often hypertension) has revealed a specific morphological appearance in the majority. This consists of a combination of mesangial cell proliferation and marked, diffuse capillary wall thickening, due, mainly, to deposits of hyaline and fibrillar material on the *sub-endothelial* aspects of the basement membrane. These features distinguish 'membranoproliferative' glomerulonephritis (GN) from other forms of proliferative GN without capillary wall thickening, and from 'epimembranous' nephropathy, in which the deposits are on the *subepithelial* aspect of the basement membrane and proliferation is absent.

Nineteen children under 16 years of age and 4 adults showed this biopsy appearance; 10 were girls aged 8-15 years. Proteinuria occurred in all patients and was relatively unselective. Serum β_{1C} -globulin levels (estimated immunochemically by Dr. J. S. Cameron,

Guy's Hospital Medical School, London) were persistently lowered in 14 patients, in contrast to the normal levels found almost invariably in other patients with the nephrotic syndrome, and the transient depression observed in acute nephritis.

The illness runs a chronic course and does not respond to corticosteroid therapy. There is some evidence that cytotoxic drugs are beneficial if given early, however, and it is therefore urged that membranoproliferative GN should be recognized as soon as possible after onset, by the clinical, laboratory, and histological features described.

GRAHAM W. CHANCE introduced by PROFESSOR D. V. HUBBLE (Birmingham). 'Plasma Insulin Response to Oral Glucose in the Parents and Sibs of Children with Diabetes Mellitus.' The ratio of the increase in circulating insulin to increase in blood glucose at times of sampling after a glucose load has been empirically termed the 'insulinogenic index'. A low and delayed insulin response has been claimed to indicate a predisposition to diabetes mellitus.

Insulinogenic indices have been calculated for responses to oral glucose loads in the first-degree relatives of children with diabetes mellitus. One-third of the mothers and one-quarter of the fathers and sibs had a low index. In those with a low index the mean values for glucose and insulin suggest that the mothers may possess an antagonist to insulin and the fathers a limited insulin response to glucose. Early results in sibs suggest that a low insulinogenic index may indeed be of predictive value in the detection of early cases of diabetes.

CHRISTINE WATSON introduced by DR. MARY J. WILMERS (London). 'A Follow-up Study of Children Born to Diabetic Mothers, with particular reference to frequency of congenital abnormalities.' The frequency of congenital abnormalities in children of diabetic and non-diabetic mothers is still uncertain.

This study aimed to compare the serious congenital abnormalities in 206 viable infants born consecutively to diabetic mothers at King's College Hospital between 1956 and 1961, with 206 control infants born to non-diabetic mothers in the same hospital, over the same period. Almost all survivors in both groups were examined personally on at least one occasion between the ages of 3 and 11 years. Follow-up was completed on 96% of the 'diabetic' offspring and 87% of the controls.

Congenital abnormalities were found in 21 (10.7%) of 197 infants in the 'diabetic' group and 10 (5.6%) of 179 controls. This difference was not statistically significant, but there was a significant trend for major abnormalities to be associated with maternal diabetes. The frequency of congenital heart disease, cerebral palsy, and mental retardation was particularly striking in the 'diabetic' group. 163 (92%) of their sibs were also followed up. 18 children (11.0%) had congenital abnormalities which showed a similar distribution to those in the main 'diabetic' group.

Defects were not significantly increased in children