

teachers. It is to the good that the days of "daft schools" are over and associations of parents and teachers are getting together to develop their ideas and teaching methods. The records of children who grow up to take useful jobs show that these schools are very successful.

The family relationships of the subnormal child are important, and parents need to be helped to appreciate them. In particular they need to be relieved of their sense of guilt in having borne a "defective child." There may be associated defects—one-third of children with cerebral palsy are subnormal and 5–8% of E.S.N. children have epilepsy. Defects that occur in normal children occur in these, and emotional maladjustment and impaired hearing or vision are more difficult to overcome when associated with limited intelligence. Do subnormal children become criminals and do they have defective children? J. D. Kershaw<sup>3</sup> points out that dull criminals are more easily caught, and without suitable education and supervision these children are more likely to become the victims of others. Family doctors in particular can contribute by helping parents to appreciate what the problems are and what is likely to be best for their child.

### THE PLACENTA

Stocktaking is as necessary in medicine as in business. The reckoning and recording of knowledge held and of deficiencies still to be made good is an essential exercise. So to appraise the placenta with its unique structure and its twin functions as organ of transfer and as endocrine gland is an important study. The *American Journal of Obstetrics and Gynecology* is therefore to be commended on its enterprise in devoting the whole of one of its December, 1962, issues to a symposium on the placenta, with contributions from both sides of the Atlantic.<sup>1</sup> In the opening paper Dr. J. M. Crawford, of Glasgow, sets out the vascular anatomy of the placenta as shown by his own technique of dissection after trypsin digestion. Outstanding in his beautifully illustrated contribution is his demonstration that the placenta grows not by an increase in the number of foetal cotyledons but by the continuing growth of capillary structures in a fixed number of cotyledons. The microscopic anatomy of the placenta is centred on these capillary beds, the vessels of which are arranged so that the greatest possible volume of foetal blood is "immersed" in maternal blood. Dr. Elizabeth M. Ramsey, of Baltimore, points out in a discussion of the circulation in the intervillous spaces that the counterflow of foetal and maternal blood-streams, although theoretically attractive as giving maximum efficiency in establishing chemical equilibrium between the two streams, is open to doubt. The maternal placental circulation depends more on the pressure differentials between arterial and venous bloods than on any mechanical direction such as envisaged by Spanner.

As to the comparative anatomy of the mammalian placenta, Dr. W. A. Wimsatt, of Ithaca, N.Y., concludes

<sup>1</sup> *Amer. J. Obstet. Gynec.*, 1962, 84, No. 11, part 2, pp. 1541-1798.

that the actual course of placental evolution is still obscure. A pithy review from Dr. K. Benirschke, of Hanover, U.S.A., of the pathology, gross and microscopic, of the human placenta, analyses the pathology of so-called infarction and suggests that the term infarct be reserved for the results of occlusion of maternal nutrient vessels. Dr. W. E. Huckabee, of Boston, reports on investigations into uterine blood-flow, and Dr. G. S. Dawes, of Oxford, on evidence that the umbilical circulation is the most important determinant of systemic vascular resistance within the foetal circulation. From France Dr. M. Panigel recounts the methods and the applications of placental perfusion experiments in the study of anatomical, physiological, and pharmacological investigations.

The remaining papers are more directly related to the functions of the placenta. Dr. C. A. Villee, of Boston, emphasizes the high rate of metabolism of the placenta and its wide range of enzymatic activities. The placenta not only synthesizes steroids but also has a battery of enzymes which carry out their degradation and conjugation. Dr. K. J. Ryan, of Cleveland, writes about the placental hormones—protein gonadotrophins and the steroid oestrogens and progesterone. He finds little clinical support for the suggested production of adrenal steroids by the placenta, and no clinical or laboratory evidence that it produces androgens as a secretory end-product. Complementary to these last two papers is one by Dr. J. Dancis, of New York, on the role of the placenta in foetal nutrition and excretion. Other authors discuss the physiology of gas exchange and modern methods of study of placental transfer and their value to the clinician in diagnosis and therapy. Dr. V. J. Freda, of New York, includes in his account of the placental transfer of antibodies a useful table detailing the reported findings of relationships between maternal and foetal titres.

The final paper, by Drs. F. Moya and Virginia Thorndyke, of New York, will probably be the one of most immediate interest to clinical obstetricians and to obstetrical anaesthetists, for it deals with the passage of drugs across the placenta. Barbiturates, tranquillizers, other hypnotics and sedatives, thalidomide, belladonna derivatives, narcotics and their antagonists, gaseous and volatile anaesthetics, local analgesics, muscle relaxants, chemotherapeutic agents, and antibiotics are all considered. It is concluded that practically all drugs used in obstetrics cross the placenta to some degree, except that muscle relaxants do so only if in very high concentration. The main factor in the rate of passage is the fat solubility of the non-ionized drug molecule.

The realization that the placenta is more than a simple barrier to diffusion has led to increasingly complex researches. This well-documented symposium offers a valuable summary of present knowledge in both academic disciplines and clinical fields, and shows the gaps in understanding that have still to be filled.

**Correction.**—In the annotation "Drugs and Doctors" (March 30, p. 835) imipramine was incorrectly described as an amine-oxidase inhibitor. It is an iminodibenzyl derivative and does not inhibit amine-oxidase.