and burdensome to patient and doctor. If indicated at all, it should certainly be conducted by an experienced team and not by the occasional practitioner.

Clinical Lessons from Developmental Neurology

The Mental Health Research Fund lecture for 1967 was given by a developmental neurologist, Professor H. F. R. Prechtl (p. 763 of this week's B.M.J.), on the sequelae of perinatal and perinatal complications. Some people might think the choice of speaker and subject rather remote from the field of mental health. This is not the case, however, for it reflects an increasing awareness of the fact that neurological, behavioural, educational, and psychiatric problems in childhood and later years may all have their origins and first manifestations in the early months of life. The statistical data and carefully reasoned discussion of Prechtl's presentation contain important lessons about the mechanisms of neurological disturbances and the techniques of neurological examination in infancy.

Many consider that a newborn baby is either completely normal or patently the reverse. Linked with this view is the notion that if a baby does not come to notice as a result of the presence of obvious symptoms and signs then all is well and further examination is unnecessary. This may be true of the immediate future, but it is the more distant outlook that counts. The aim is that the child should have every chance of growing into a mentally and physically healthy adult. H. Knobloch and her colleagues have challenged the correctness of the "all or none" concept. These workers suggested that there was a "continuum of neurological damage," ranging from gross defects to initial minor damage with later sequelae, and this hypothesis is strengthened by Prechtl's findings. If their view is correct then detailed neurological examination of neonates is necessary to detect those with less obvious lesions who may later develop other more serious defects. To do this we need to be sure that our diagnostic tools are sufficiently precise for the task.

Prechtl's observations show that our present clinical techniques are unsatisfactory. Comparing the results of his methods of examination with those obtained by classical neurological techniques, he found that, though all the babies considered abnormal by the classical methods also scored poorly in his examination, many babies who appeared to be normal on the classical type of examination had low scores in his examination and also developed later sequelae. Prechtl's technique consists of a battery of quantitative observations made under strictly controlled conditions. This is time-consuming work which is not easily adapted to clinical practice. Nevertheless, it should be studied so that the routine neurological methods used in diagnosis may be improved.

Important applications arise from this work concerning the rearing of young babies. Some of the difficulties which commonly occur in the rearing of young babies are attributed to the inexperience or fault of the mother. Possibly there is a neurological basis for them which a Prechtl type of examination might reveal. Moreover, these minor neurological disturbances may be sufficient to affect the early behaviour of the infant and impair the mother-child interaction. This important period of emotional development is already being studied extensively, and everyone concerned should take note of Prechtl's work.

The concept of the "at risk" infant, which was introduced by Sheridan to stimulate the early detection of handicaps, has been criticized because of the unsatisfactory criteria of risk. Those concerned with finding satisfactory criteria might consider Prechtl's work. He points out that adverse obstetric factors rarely occur singly and has assessed the influence of clusters of adverse factors, using a "risk score" in his analyses.

Prechtl's work also has several implications in research. In particular, he has shown the importance of carefully standardized quantitative methods in developmental neurological examinations and their use as a research tool. It is reassuring that in Britain these methods are already being studied and taught in our more progressive departments of child health.

Miliary Crohn's Disease

The diagnosis of Crohn's disease can on occasion be puzzling. Recently K. W. Heaton, C. F. McCarthy, R. E. Horton, J. S. Cornes, and A. E. Read have drawn attention to a form of it which may give rise to difficulties. They describe three patients in whom at laparotomy the conspicuous finding was the presence of many pale nodules on the serosal surface of the bowel. Tuberculosis was initially diagnosed in two of the patients and they were started on antituberculous therapy.

The distinction between Crohn's disease and abdominal tuberculosis is a matter of some practical importance, for corticosteroids might prove disastrous in tuberculosis inadvertently diagnosed as Crohn's disease. The great majority of granulomatous lesions in the ileo-caecal region are due to Crohn's disease, and it seems likely that many patients suffering from it were diagnosed in the past as having hyperplastic tuberculosis. Nevertheless, some modern physicians have described the occurrence of tuberculosis of the ileo-caecal region, so that the possibility of this disease being present cannot be excluded without full investigation.

Histologically, the serosal nodules of Crohn's disease consist of non-caseating granulomata with giant cells of Langhans's type present. Caseation is exceptional in Crohn's disease, whereas it is one of the characteristic features of tuberculous nodules. The granulomata of Crohn's disease are bacteriologically sterile, while those of tuberculosis usually yield tubercle bacilli on culture or guinea-pig inoculation.

One of the patients described by Heaton and his colleagues is of particular interest because the serosal nodules were numerous, though the intestinal wall was barely affected. The authors were then led to postulate that the granulomata are the dominant lesions in early subacute Crohn's disease, and the fact that they follow the lines of lymphatics supports the view that the first pathological changes occur in the

lymphatics. Moreover, they were hopeful that patients treated at this stage with corticosteroids might do well and the bowel wall escape any major damage. The particular patient was doing well on prednisone therapy at the time they wrote their article, but unfortunately in an addendum they have to report that widespread radiological changes of Crohn's disease appeared in the small and large intestine, though the patient remained symptomatically well.

Cerebral Angiomas

Once discovered, cerebral angiomas are much less likely to cause death from haemorrhage than are the commoner berry aneurysms of the circle of Willis and its branches. This is evident from the recent account by W. R. Henderson and R. de R. L. Gomez1 of the natural history of these malformations, and they confirm the findings of earlier workers, notably H. J. Svien and J. A. McRae.2 Indeed, J. M. Potter3 has drawn attention to a number of patients who lived for many years at relative peace with their lesions and often with little or no disability, particularly after receiving the sort of radiotherapy that was given 30 to 40 years ago. This did not, of course, prove that radiation was necessarily effective—most authors think that it is not—but it did show that it would have been unnecessary to have submitted those patients to operations carrying the mortality and morbidity prevalent in those days.

Any major operation of uncertain prophylactic value needs to be examined critically. Present techniques for the precise localization of these angiomas and the definition of their feeding and draining vessels (they nearly all have arteriovenous fistulae), together with modern neurosurgical and anaesthetic methods, enable the surgeon to operate on apparently formidable lesions in the expectation of a relatively low mortality. However, some degree of disability—hemiparesis, hemianopia, or dysphasia if the dominant cerebral hemisphere is affected—is still an ever-present and unpredictable risk unless the malformation is well clear of the related cortical areas. Nevertheless, many neurosurgeons prefer to operate if it appears at all feasible to do so, and the indications for excision may therefore be briefly reviewed.

Many of these patients have some form of epilepsy as their sole symptom, and, while it is true that seizures may be modified or abolished at least for a time after operation, surgical treatment is unreliable. Indeed, the resulting brain scar may itself produce fits in some patients who did not have them before operation. Only if the epilepsy is frequent, disabling, and uncontrolled by anticonvulsant drugs does surgery appear to be indicated.

Some believe that the removal of a cerebral angioma is prophylaxis against the insidious development of mental and physical deterioration that these patients sometimes suffer, but firm proof of this is lacking, and any penalty from the operation itself may be unwelcome. Rarely (in only two patients in the series of Henderson and Gomez), the lesion itself gives rise to increased intracranial pressure, for which some kind of decompressive procedure appears mandatory. More often the cause is a sizable haematoma that requires evacuation, and it is then often possible to remove the angioma at the same time.

Apart from these indications, it seems proper, as Henderson and Gomez suggest, to operate only on those malformations that are likely to be removable without risk of producing serious neurological damage. Estimates of this risk will differ. Thus the proportion of cases submitted to operation, and whether there is resulting neurological damage or not, will depend on the individual surgeon's judgement. But even when the operation has apparently been completely successful statistics cannot ever tell us whether it was necessary in that particular case. If an operation is undertaken, the whole lesion must be removed to ensure prophylaxis, for if any abnormal vessels are left behind the risk of further haemorrhage remains. An ingenious method of treatment remains to be mentioned, that of artificial embolization of the arteriovenous fistulae by means of plastic spheres,4 but this may be said to be still in the experimental stage.

Spontaneous intracranial haemorrhage occurring in patients without evidence of cardiovascular disease, and particularly in younger people, always raises anxiety about treatment, so that there is much to be said for knowing early on what is its cause and to be sure that there is not, for example, a small, easily removable angioma situated in a silent area of the brain. Consequently, some workers may consider that cerebral angiography should be undertaken more readily than Henderson and Gomez suggest. However, their important paper indicates that, in the light of present knowledge, conservative treatment may be appropriate for the majority of these patients, and that an angioma need not be removed simply because it is there.

B.M.A. Awards

This week notices appear at the end of the Supplement inviting members of the B.M.A. to apply for grants to help their research. Awards of this kind, together with substantial monetary prizes, are a prominent part of the Association's endeavours to "promote the medical and allied sciences," which is the first of its stated objects. If the B.M.J. may be forgiven for regarding the publication of this journal and its associated periodicals (15 specialist and two abstracting journals) as pre-eminent in the Association's fulfilment of its primary aim, the numerous scholarships and prizes nevertheless make a large contribution in offering both encouragement and acknowledgement to many doctors keen to advance medicine. In addition, a number are also available to medical students and nurses.

The Chairman of Council, Dr. Ronald Gibson, suggested at a recent meeting of the Committee on Medical Science, Education, and Research (reported at Supplement page 92; that maintaining "the interests of the profession," another of the B.M.A.'s declared objects, had somewhat overshadowed its other aims, at least in the public eye. Certainly political conflict is apt to excite attention to an extent unlikely to be rivalled by the uncontentious stimulus to research afforded by grants and prizes. But in a remarkable number of cases a B.M.A. fellowship has been the starting-point for a long and fruitful career in research.

Most of the awards go up to about £300, but now a new whole-time research fellowship of £1,500 is being offered. It is tenable for a year, normally renewable for a second year, and is offered to assist research into any subject relating to the causation, prevention, or treatment of disease.