level, pupil reaction, and corneal reflex. However, there were many discrepancies in individual patients so that the vestibulo-ocular reflex afforded useful information additional to that obtained from traditional tests. Bilateral abnormal motor activity or absent pupil reactions were often associated with relatively unimpaired vestibulo-ocular reflex responses. There was no correlation between abnormal breathing patterns and impairment of the vestibulo-ocular reflex. Caloric tests were carried out in 100 patients within a day of admission. An impaired response correlated with a poor prognosis for recovery.

LATERAL EXTRADURAL APPROACH TO SCHWANNOMAS OF THE CEREBELLOPONTINE ANGLE

HUW GRIFFITH (Bristol) had devised an extradural approach to the cerebellopontine angle in the cadaver, and had employed it for the first time on a patient in January 1972. Twenty cases had undergone this operation. All the tumours had been medium sized or large. Removal had been total in 18 cases and subtotal in two. Postoperative complications had been few. Three patients had transient CSF rhinorrhoea, one patient had a single episode which might have been epileptic, all patients had improvement in nystagmus, and all had shown improvement in ataxia. In one patient, trigeminal sensation was absent after operation. Continuity of the facial nerve had been preserved in eight patients, and in one case where the nerve root was divided a satisfactory result followed reapproximation of the nerve ends.

Postoperative recovery had been rapid and striking due, it was suggested, to the fact that the cerebellum had not needed retraction.

CERVICAL MYELOPATHY TREATED BY ANTERIOR DECOMPRESSION AND FUSION

W. E. STRACHAN (Plymouth) presented the results in 65 patients with cervical spondylosis one to seven years after treatment by anterior decompression and fusion using the Harris modification of Cloward's technique. The ages of the patients ranged from 44 to 76 years (average 62.4). Self-assessment questionnaires had been used.

Preoperative severity of the condition was judged by functional ability. Fifteen patients were ambulant but unable to work or pursue hobbies. Twenty-six required help for walking and feeding. Twenty-four were confined to chairs or beds and required considerable assistance. In 10 cases one level was affected, in 17 cases two were involved, and in 38 cases more than two levels were involved. Myelographic block was complete in eight patients and partial in 19. In more than 75% of the patients the

cervical canal was narrow. Postoperative function was 100% in 32 patients, 55% in 14, 50% in seven, and less than 50% in two. Two patients were unchanged, and eight were worse. Thirty-six (55%) had no limitation in walking ability, 22 (35%) were able to walk up to one mile, and seven (10%) could not walk a mile. No patient was unable to walk out of doors, although 14 (32%) did use sticks or other walking aids, not necessarily because of symptoms due to myelopathy.

The results did not seem to correlate with age, severity or duration of symptoms, or with the numbers of levels treated. In one patient early improvement was followed by deterioration. Rate of improvement was variable. In about 20% of cases improvement continued longer than 18 months. Physiotherapy seemed to have little effect on the final functional results.

FURTHER EXPERIENCE WITH EMI SCANNING IN PAEDIATRIC NEUROSURGERY

NORMAN GRANT (London) described further experiences with the EMI scanner in the management of paediatric neurosurgical patients. With increasing experience, it was found possible to operate after history taking, bedside examination, plain radiography of the skull, and an EMI scan which was sufficiently conclusive to allow surgery without further radiological investigation. This was particularly the case in children with classical signs and symptoms of cerebellar or fourth ventricle tumours. Intravenous contrast infusion enhancement increased the reliability of the scan interpretation.

It had been found that considerable reliability could be achieved in differentiating between cerebral infarction and abscess in cyanotic children referred from a cardiothoracic unit. The scan was highly reliable—particularly in combination with contrast enhancement—in detecting the vascularity of an abscess capsule. Intracranial haematoma after injury was expeditiously and reliably investigated by EMI scanning. Children with traumatic oedema and no blood clot and those with acute hemiplegia due to infarction rather than abscess could be spared further investigation and operation with the scanning technique. The diagnosis of benign intracranial hypertension by exclusion of a space occupying lesion could be rendered less traumatic by computerized scanning. Deep lesions in the thalamus or basal ganglia could be diagnosed as gliomatous and treated by x-ray therapy without histological or neuro-radiological verification. EMI scanning might allow one to detect which brain stem tumours were cystic and possibly amenable to surgery. Optic nerve gliomas confined to the orbit and therefore resectable could be identified by the scan. Other conditions

which might be investigated with this machine were postoperative haematomas, tumour recurrences, metastases, porencephalic cysts, and treated hydrocephalus.

Computerized scanning had already shown itself to be capable of playing a very significant role in the investigation of paediatric neurosurgical patients.

TWO CASES WHERE ABNORMAL VASCULAR ELEMENTS OBSTRUCTED OUTFLOW FROM THE THIRD VENTRICLE

R. J. BRUCE (Middlesbrough) described first a woman aged 38 years who presented clinically with symptoms and signs suggestive of right frontal tumour of two months' duration. Carotid angiography revealed evidence of ventricular dilatation. The internal cerebral vein was displaced to the right. Subsequent ventriculography showed a mass in the third ventricle posterior to the interventricular foramina. Exploration with a needle showed that the mass contained arterial blood. Vertebral angiography showed a large basilar aneurysm. After ventriculoatrial shunting there was marked improvement but the patient died six months later. It was assumed that expansion of the sac had been responsible for the fatal outcome.

In the second case, a man aged 58 years showed features of Parkinsonism with tremor of the left arm and leg associated with cogwheel rigidity. Response to L-dopa was poor, and subsequent clinical examination suggested that there might be neoplastic infiltration of the basal ganglia. Right carotid angiography showed a cerebellar arteriovenous malformation supplied from the external carotid artery. There was no indication of a contribution from the vertebro-basilar system. The venous elements formed large masses in the interpeduncular system, obstructing and displacing the proximal portion of the aqueduct. After ventriculoatrial shunting and external carotid artery ligation dramatic improvement took place but the patient died 15 months later from a subarachnoid haemorrhage.

DELAY IN DIAGNOSIS OF OPTIC NERVE AND CHIASMAL COMPRESSION

G. NEIL-DWYER (London) and J. GARFIELD (Southampton) had studied 29 patients with unilateral failing vision, subsequently shown to have optic nerve or chiasmal compression. The diagnoses were chromophobe pituitary adenoma in 16, suprasellar meningioma in 11, craniopharyngioma in one, and internal carotid aneurysm in one. In only five patients had the correct early diagnosis of a compressive lesion been made. In four patients visual deterioration had been considered to be due to refractive error. All these had chromophobe pituitary adenomas but none had

undergone skull radiography or examination of the visual fields before referral. Five patients had been initially diagnosed as having retrobulbar or optic neuritis. Two of these had experienced some visual deterioration. One initially had a central scotoma but in none was there any phase of optic disc swelling or abnormality of pupillary reflexes. Four patients had abnormal skull radiographs when referred. In seven patients no diagnosis had been made and no follow-up had been instigated. In eight patients to whom miscellaneous diagnoses had been attached it was disturbing to find that the diagnosis in two had been hysterical amblyopia.

The importance of visual field examination in the diagnosis of chiasmal compression has been emphasized previously yet in this study only six patients had fields charted at initial visits. Of these six, one had a central scotoma and two had bitemporal hemianopias yet they were not referred for further investigation. The chief errors leading to faulty diagnosis had been too ready acceptance of the diagnosis of neuritis, failure to chart visual fields, failure to consider the possibility of compression in the absence of a demonstrable intraocular cause for failing vision, and failure to follow-up patients in whom no diagnosis had been made. A contributory factor had been the neglect to undertake skull radiography.

ISOLATED FITS—A NEUROLOGICAL DILEMMA

MICHAEL SAUNDERS (Middlesbrough) reported a study of 39 patients referred to an EEG department with an isolated fit. The group was compared with 39 patients with recurrent seizures matched by age and sex. Thirteen attacks were nocturnal during sleep, eight occurred just before waking, 17 were diurnal, and the time of one attack was unknown. Thirty-six presented with a major seizure, two had focal fits, and one had a temporal lobe attack. Fifteen EEGs were normal, one showed spike and wave activity, 16 showed temporal lobe abnormalities, and seven had a general excess of slow activity. For the 22 patients who were known to be well and receiving no anti-convulsants, the follow-up period varied from 10–52 months, the mean follow-up period being 26 months. Thirty-four isolated attacks were of unknown cause, one was associated with the Shy-Drager syndrome, and one was associated with birth trauma. Two were thought to be due to cerebrovascular disease and one was due to primary subcortical epilepsy.

No clear guides to prognosis were found. In this study, the majority of patients with isolated fits appeared to have a low tendency to further seizures. EEG recordings were unhelpful in distinguishing between those likely to have further attacks and those likely to remain well. It was suggested that