not be given in pregnancy nor to infants because of their action on teeth and bones. If erythromycin is given, the base, not the estolate, should be used because of the risk of liver damage with the latter. L. Z. Oller has reported treating an early infection in a pregnant woman who was sensitive to penicillin with 2 g cephaloridine daily in divided doses for 14 days. In a series of patients with early syphilis reported by A. L. Schroeter and his colleagues8 treatment rates after terracycline and erythromycin were higher than after penicillin. When resort to these alternatives is necessary, careful follow-up is essential.

6 Dunlop, E. M. C., British Medical Journal, 1972, 2, 577.

Normal-pressure Hydrocephalus and Psychiatric Disorders

In 1965 R. D. Adams and colleagues1 2 described a syndrome of progressive neurological degeneration with mental deterioration, psychomotor retardation, unsteadiness of gait, and incontinence of urine. They recognized that this syndrome may be seen in a number of neurological diseases including degenerative diseases, cerebrovascular disease, and traumatic damage to the brain. In their cases, however, the cerebrospinal fluid pressure was normal, though there was significant hydrocephalus, and they advanced the theory that the total force exerted by the cerebrospinal fluid on the ventricular wall was greater than normal. The characteristic feature of their cases was the variability of the clinical picture and the notable effect of procedures altering the dynamics of the cerebrospinal fluid. Many patients deteriorated after pneumoencephalography, and in most cases repeated lumbar punctures were effective in reducing the neurological and mental deficit. Lowering the pressure of the cerebrospinal fluid appeared to be beneficial in most cases. In a further report on 28 patients treated by ventriculo-atrial drainage, eight out of 13 with no known cause of their condition improved with drainage, while all four of the cases due to subarachnoid haemorrhage and four due to cerebral trauma similarly improved.3 Two cases of hydrocephalus due to mid-brain tumours or aqueduct stenosis improved, as might be expected, with ventricular drainage, but the authors found no change in five patients with dementia from atrophic brain disease, which was presumably Alzheimer's disease. A characteristic pneumoencephalographic appearance has been recognized. Air will not pass from the basal cisterns over the cortex, or at least will pass no further than the Sylvian fissure.4 5 The aetiology of the condition is not certain, though it has been suggested that there are adhesions in the subarachnoid space impairing the passage of cerebrospinal fluid to the arachnoid granulations in the superior longitudinal sinus. Blood in the cerebrospinal fluid after subarachnoid haemorrhage or trauma may cause these adhesions. An alternative explanation for some cases is that dilatation of the basilar artery produces a functional obstruction of the basal cisterns.6

In view of the frequent deterioration after pneumoencephalography, it is wise to avoid this investigation if the diagnosis is suspected. A dynamic picture of the flow of the cerebrospinal fluid within the subarachnoid space may be obtained by injection of radioiodinated human serum albumin into the lumbar theca, and scanning the brain at intervals thereafter.4 7 The albumin slowly passes to the superior longitudinal sinus and is absorbed in 24 to 48 hours in normal patients. Where there is a communicating hydrocephalus of any cause the accumulation of albumin around the superior longitudinal sinus is impossible, and it enters the ventricles. It has been shown that the ventricles may fill in the first 24 hours in a few normal individuals and in those with aortonic brain disease, but the retention of the albumin in the ventricles for 48 hours or more is diagnostic of normal-pressure hydrocephalus. It indicates a good response to shunting procedures.8 7 This is in keeping with the experimental observation that absorption of cerebrospinal fluid in chronic hydrocephalus is mainly through the ventricular wall.8

In view of our inability to treat many causes of neurological disease presenting with this clinical picture, and the relative simplicity of the shunting procedure, a number of patients without the classical appearances on pneumoencephalography or radioiodinated albumin cisternography have received ventriculo-atrial shunts, most without any benefit. Likewise, efforts are being made to identify patients with normal-pressure hydrocephalus who present with an atypical picture. E. Rice and S. Gendelman9 recently described five patients in whom psychiatric disturbances, including depression, confusion, delusion, and mental deterioration, were the major feature, while neurological disturbances were relatively less obstructive. All apparently had normal cerebrospinal fluid pressures, and the characteristic pneumoencephalographic appearances described above. Two of three in whom a ventriculo-atrial shunt was inserted improved substantially.

Many patients with neurological and psychiatric conditions which in former decades were thought to be "degenerative" are now seen to be treatable. The important step is to understand such diseases and so to identify these patients.