denied that the overwhelming evidence at the moment does not support the idea.

However, the truly worrying aspect of this paper is the results. In every respect, the morphology of the SEP in the normal controls differs substantially from results shown by Salamy (1978) whom the authors cite as the basis of their technique. The amplitudes (especially N_1, P_2) in Jones and Miller's normals are less than half the size shown by Salamy (1978). In fact the waveforms shown by Jones and Miller are sufficiently unlike Salamy's (1978) as to lead one to believe that they simply recorded their SEPs from sites other than those stated (e.g. 1–2 cm anterior or posterior to the point 6–7 cm lateral to the midline in the internal plane). However, even at such sites the waveform remains fairly intact and more importantly the peak latencies at such sites approximate those seen at sites 3 cm posterior to the lateral point. It is this aspect of the Jones and Miller results which is so confusing. The latencies of P_1, N_1 and P_2 in Jones and Miller are surprising. In the contralateral condition all three peaks occurred before 50 msec whereas in the ipsilateral condition all other peaks occurred after 50 msec (their Fig 1). This is in contrast to Salamy who observed that generally only the P_1 peak occurred before 50 msec.

The next issue concerns the gross discrepancy between Jones and Miller and Salamy (1978) on the ipsilateral-contralateral mean latency differences for the three peaks. The differences reported by Salamy (1978) range from approximately 5 msec to at the most 10 msec in his adult sample. Jones and Miller present differences ranging from approximately 8 msec to 26 msec. The latter latency is greater than Salamy observed in 4½-year-old subjects. In fact, it is likely that in statistical terms, the schizophrenic patients not the controls of Jones and Miller more closely approximate Salamy's (1978) normal adult controls. Further this finding must have been common given the results shown in their Fig 2. Even this proposal must be treated cautiously insomuch as out of 36 ipsilateral-contralateral latency differences reported for patients fully 19 of them reflected earlier ipsilatreal latencies. This result receives no mention by Jones and Miller. Considering the impressive array of evidence reported and cited by Salamy (1978) that ipsilateral responses are slower than contralateral responses almost certainly due to being transmitted commissurally it is surprising that Jones and Miller offered no explanation for their ability to record a SEP at a secondary site before it had reached the primary location.

The suggestion of Jones and Miller that the corpus callosum of schizophrenics "is not conducting at all" is extremely unlikely. If this were so, results obtained by Sperry and his colleagues with split-brain patients would be easily demonstrable in schizophrenic patients—a proposition well known to be not the case. As I mentioned earlier, transmission problems are a possibility but a total lack of function is simply not tenable.

Finally, it should be noted that Salamy's (1978) technique is likely to be assessing only the large diameter (2.5 μm) myelinated axons which represent 10 per cent of myelinated callosal axons. Further, something in the region of 40 per cent of human callosal axons are unmyelinated (Swadlow *et al*, 1979). The end result of all this is that even if the results of Jones and Miller were not so unlikely, reaching conclusions such as total callosal block based on less than 5 per cent of callosal axons would be inadvisable.

Jones and Miller observe in the first paragraph of their Discussion the possible reasons for their unusual results. Whether their explanations are valid or not is open to question, but one is compelled to suggest that given their exceptional results it might have been worthwhile ascertaining just what they were measuring and considering the issues rather more thoroughly.

JOHN F. CONNOLLY

Wellcome Research Fellow,
Department of Psychiatry,
Charing Cross Hospital Medical School,
London

References

BEAUMONT, J. G. & DIMOND, S. J. (1973) Brain disconnection and schizophrenia. *British Journal of Psychiatry*, **123**, 661–2.

FLOR-HENRY, P. (1976) Lateralized temporal-limbic dysfunction and psychopathology. *Annals of the New York Academy of Science*, **280**, 777–95.

GRUZELIER, J. H. & VENABLES, P. H. (1974) Bimodality and lateral asymmetry of skin conductance orienting activity in schizophrenics: replication and evidence of lateral asymmetry in patients with depression and disorders of personality. *Biological Psychiatry*, **8**, 55–73.

JONES, G. H. & MILLER, J. J. (1981) Functional tests of the corpus callosum in schizophrenia. *British Journal of Psychiatry*, **139**, 553–7.

SALAMY, A. (1978) Commissional transmission: maturational changes in humans. *Science*, **200**, 1409–11.

SWADLOW, H. A., GESCHWIND, N. & WAXMAN, S. G. (1979) Commissural transmission in humans. *Science*, **204**, 530–1.

DEAR SIR,

Following the suggestion that the corpus callosum be examined carefully in schizophrenia (*Journal*, December, p 556) we have been able to do so in two instances.

A 53-year-old man drowned after a 21 year history of schizophrenia, with clear passivity phenomena and

auditory hallucinations in which the voices discussed him between themselves. He suffered a severe defect state, and had been seen in life by one of us (G.J.).

Post mortem examination confirmed fresh-water drowning as the cause of death, and revealed moderate portal cirrhosis compatible with his daily drinking over the last 15 years. His brain was larger than normal weight 1700 gm but with no morphological abnormality. Histological study of his corpus callosum showed mild non-specific degeneration changes with some loss of myelin, glial proliferation and foci of amyloid bodies. Other areas of the brain showed general degenerative changes.

A 57-year-old man died of myocardial and pulmonary infarction having been admitted twice to Whitchurch Hospital in 1950, and been treated by modified insulin therapy. He believed wrongly that the neighbours were giving him a germ poison, and that he could hear them talking about him, and plotting to kill him. He was described as solitary, withdrawn, and fatuous, grimacing and chuckling in reply to hallucinatory experiences. He did not improve on therapy, and left hospital in a marked defect state to be cared for by relatives.

His brain showed slight cortical atrophy, the leptomeninges at the base were slightly thickened and the internal carotid and middle cerebral arteries showed marked atheroma. The histology of the brain showed subendothelial hyaline degeneration compatible with hypertension. The corpus callosum showed patchy fibre loss, with frequent amyloid bodies and astrocytes. Similar changes were observed in some other parts of the brain.

While these changes are patchy and non-specific, the fibre loss would impair the conduction of nervous impulses across the corpus callosum. The second patient is noteworthy as he had never received phenothiazines. Clearly, further work needs to be done in this area.

G. H. JONES

Department of Psychological Medicine, Whitchurch Hospital, Cardiff

J. J. MILLER

MRC Institute of Hearing Research, University Hospital of Wales, Heath Park, Cardiff

E. E. PAYNE

Senior Lecturer in Pathology, Institute of Pathology, Royal Infirmary, Cardiff CF2 1SZ

PROLACTIN RESPONSE TO NEUROLEPTIC CHALLENGE

DEAR SIR,

We were interested to read that Kolakowska and her colleagues (*Journal*, November, 1981, **139**, 400–4) found that chronic neuroleptic treatment did not abolish the prolactin response to haloperidol in patients with schizophrenia. In contrast, we have found that routine treatment with haloperidol completely abolished the prolactin response to further haloperidol injection in two hypomanic patients. Before treatment both patients showed a normal response to intravenous injection of haloperidol (open circles in figure). After one and three weeks of treatment with haloperidol, however, the baseline prolactin concentrations were raised to such an extent that the test dose of haloperidol produced no further increment in prolactin levels, (closed circles and triangles in figure). Presumably then, in our patients, pituitary dopamine receptors were maximally blocked after one week of treatment with haloperidol; at this time little reduction was found in the patients' scores on rating scales for measuring manic symptomatology.

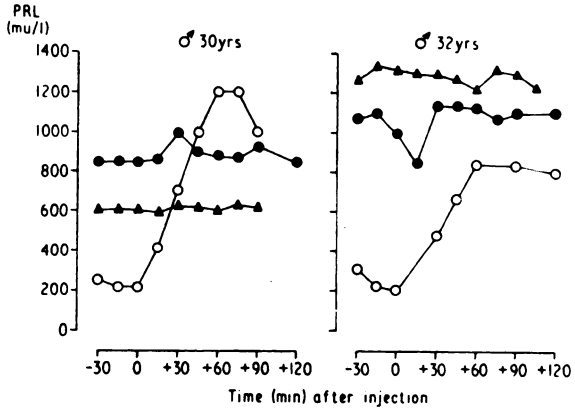

FIG.—Plasma prolactin concentrations after the injection of haloperidol (1.0 mg i.v.) at time 0 in patients with hypomania studied in a drug free state (○———○) and after one (●———●) and three (▲———) weeks of treatment with haloperidol (10–40 mg/day given orally).

In our two hypomanic patients therefore, maximal dopamine blockade in the pituitary preceded clinical response. Similarly resting prolactin concentrations have been shown to reach a maximal level in patients with acute schizophrenia well before they respond clinically to treatment with flupenthixol (Cotes *et al*, 1978).

Kolakowska's paper does not establish that her patients had responded to neuroleptic treatment at a time when they demonstrated only partial blockade of pituitary dopamine receptors: we therefore question her unconventional view that "the degree of dopamine receptor blockade required for therapeutic effect is below that which produces a maximal prolactin