practiced by several psychiatrists in 1946 as a method of treatment of depression (Bourgeois, 1967). More recently, endogenous depressed patients were found to have a lower response to carbon dioxide (CO_2) inhalation. Damas-Mora *et al* (1978) hypothesised that depressed patients have hyposensitivity to CO_2. However, the relationship between anoxia, CO_2 sensitivity and depression is still speculative. Also, it is reported that during periods of acute ischaemia there is a progressive increase in calcium entry inside the cell, an increase in catecholamine release, and a rapid accumulation of cyclic AMP (Palmer, 1985). These changes may play a role in precipitating a mood change after suicide attempt by hanging.

In summary, Ms A probably had a partial and temporary change of depressive symptoms after her suicide attempt. This increased the complexity of her clinical picture. Whether the effect is biological, psychological or both, such possible effects need always be considered in the evaluation of the mental status of depressed patients who fail in their suicide attempt. Further research needs to be conducted on the effect of failed suicide on the mood as well as on the possible interesting relationship between anoxia and CO_2 in depression.

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Hyperinnervation of orbital frontal cortex in schizophrenia

SIR: Waddington (*Journal*, May 1990, **156**, 615–619) is rightly intrigued by Schetzman *et al*'s (1988) findings of increased resting glucose consumption (hypermetabolism) in the frontal lobe of neuroleptic-naive schizophrenics. This contrasts with several earlier reports of hypofrontality in previously treated schizophrenics. Dr Waddington discusses the speculation that hyperfrontality could indicate hyperinnervation of frontal cortex. He points out that this is a variant of the hypothesis that schizophrenia involves a fault in the normal developmental process of synaptic elimination. However, rather than discussing the relevant neurochemical evidence, Waddington reviews studies of the peripheral neural cell adhesion molecule (NCAM) whose relationship to the impaired synaptic elimination story seems obscure.

We presented direct evidence compatible with an excessive glutamatergic innervation of orbital frontal cortex in schizophrenia (Deakin *et al*, 1989). *In vitro* binding of ^{3}HD-aspartate, a ligand that binds to glutamate uptake sites, and of ^{3}H-kainate, a glutamate receptor ligand, were both significantly increased in orbital frontal cortex from left and right sides of schizophrenic brains obtained at post-mortem. We have since found increased ^{3}H-TCP binding to another type of glutamate receptor which is again localised to orbital frontal cortex.

Independent corroboration of increased frontal cortical ^{3}H-kainate binding is described in a Japanese brain series (Toru *et al*, 1988). Furthermore, G. P. Reynolds (personal communication, 1989) has recently found increased concentrations of glutamate itself, which are localised to orbital frontal cortex in schizophrenic samples.

We pointed out that an increased number of glutamate synapses in orbital frontal cortex could explain increased ligand binding to pre- and post-synaptic sites (Deaken *et al*, 1989). Since the changes were bilateral, we further suggested that an excessive mutual innervation of one orbital frontal cortex by the other could be the origin of the additional synapses. We suggested that the cause was an arrest in the normal developmental process which eliminates immature transient projections. We agree with Dr Waddington that more imaging studies in drug-naive subjects are needed to identify disease-related changes in cerebral function, but direct studies of the neurochemical anatomy of the brain are needed to identify the primary pathology.

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The prescribing debate (continued)

SIR: In my previous letter (*Journal*, October 1989, **155**, 566), I had hoped, as requested, to stimulate debate and articles such as Fleming's (1990) in the *Bulletin*. Since Johns (*Journal*, January 1990, **156**, 129) went to the trouble of reading my two references, he may have noted that the first referred to *empirical experiments* (e.g. Stimson *et al*, 1978; Vaillant, 1984). These, replicated more widely and collated by Schneider (1988), show that no external agency expedites the ending of addiction, not even life-events (Sobell, 1990). However, there is evidence that prescribing reduces the harm done to addicts and others and reduces the incidence of addiction, i.e. is preventative (see Marks, 1990).

The second reference was not my "restated well known view", but the balanced and considered opinion of the Editor of the *Lancet*. Dr Johns might also reflect on the fact that there is *no* evidence that *not* prescribing is helpful. Indeed, such evidence as we have (the British System 1920–1960 versus the prohibition 1960–1990) suggests the opposite. I merely suggest experiments: our experiment in Widnes reduced drug-taking and stopped AIDS. None of our injectors, all of whom have been tested, are infected. London's policy of restricting prescribing has seen a rise in HIV infection *and* drugtaking. The onus is on Dr Johns and his colleagues to refute (or replicate!) our findings.

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CORRIGENDUM

Journal, July 1990, **157**, 25–33 (G. Thornicroft). The last sentence in the penultimate paragraph on page 32 should read "Finally, when ethically acceptable . . .".

A HUNDRED YEARS AGO

The treatment of alcoholism by strychnine

Dr Pombrak, writing in the Meditsinskoĕ Obozrênie on alcoholism, describes seven cases treated by hypodermic injections of strychnine – a method that seems especially in favour in Russia, where, however, it must be remembered that drunkenness presents as a rule in forms somewhat different from those prevalent in this country. Dr Pombrak found strychnine a very valuable remedy, both in cases of chronic alcoholism and in those of dipsomania, not merely curing the attacks, but abolishing the desire for drink. Even attacks of delirium tremens were influenced beneficially. The treatment must be carried out in a systematic manner, and must frequently be kept up for a very considerable period. As to the dose, Dr Pombrak in cases of moderate severity commenced with one-thirtieth of a grain, in more serious ones with one-fifteenth. He found that while the treatment was being carried out there was no necessity to order the patients to abstain from the use of spirits, as they always did so of their own accord.

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Lancet, 3 May 1890, 980.

Researched by Henry Rollin, Emeritus Consultant Psychiatrist, Horton Hospital, Surrey