the poorest social conditions still had the most severe deficit. Moreover, when twenty patients from each hospital, matched for age, length of stay, clinical condition, negative score and attitude to discharge, were compared, major differences remained between the social environments provided for them by the hospitals.

Among much other evidence provided, Abrahamson may be surprised to read that this was not just a cross-sectional study but involved repeated observations over a period of eight years. The social withdrawal scores rated at the beginning and end of that time were highly correlated and showed a mild average improvement in those who remained in hospital. His observation that schizophrenic patients do not necessarily deteriorate thus replicates ours. However, we did measure an increase in 'social poverty' in two of the hospitals during certain periods of observation, with a concomitant increase in 'clinical poverty'.

We pointed out that surveys of this kind could not provide definitive tests of the three kinds of theory stated in chapter 1, but this unit has provided a series of other studies, some of them experimental, that strongly support an interactive socio-medical model. Abrahamson might be particularly interested in an experiment involving very severely impaired patients (Wing & Freudenberg, 1961). They were not impervious to further social stimulation, the problem was to maintain improvement once it was withdrawn.

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Gluten Sensitivity in Schizophrenia

SIR: Vlissides, Venulet & Jenner (*Journal*, April 1986, **148**, 447–452) have concluded that gluten sensitivity is of little importance for schizophrenia in general. This far-reaching conclusion is based on a study which is methodologically unsound and, at best, inconclusive.

The difficulty in interpreting the data on quite remarkable patient improvement noted after the switch from pre-trial hospital diet to gluten-free diet is a case in point. Five parameters showed statistically significant improvement: psychotic disorganisation, retardation, hostile belligerence, anxious depression, and depressive mood. No significant worsening was noted on any parameter. Judging from Figure 1, several of the remaining seven PIP dimensions may well have registered significant improvement under gluten-free diet had one-tailed (directional) statistical tests been performed, which is the appropriate statistical technique since a specific hypothesis was under investigation. However, regardless of the statistical method, one is unable to determine whether the data reflect treatment effect, observer bias or a placebo effect because the period before gluten-free diet was non-blind and there was no parallel control group. The subsequent period of gluten challenge did not do much to resolve the issue because possible observer bias arising from knowledge of the sequence of treatments and the time series effects were not controlled. More importantly, the research design did not permit a consideration of the possibility that the six week gluten challenge, while not worsening psychopathology to base-line values, may well have had enough adverse effect in the time period to arrest therapeutic progress. In the AB research design used, this would show up as 'no change', whereas in the ABA design used in the Singh & Kay (1976) study, such an adverse effect would very likely have been detected.

The authors attributed the clinical improvement in patients to the attention they received during the study, or what would generally be described as a placebo effect. Within the framework of their study design, such a conclusion would be no more valid than that suggesting an active treatment effect of gluten exclusion. To the contrary, sustained improvement of a highly chronic and treatment-resistant group of schizophrenics lasting over 3 months due to mere attention or placebo effect would be highly implausible indeed.

The study is also open to criticism because of the patient sample used. While the hypothesis being tested relates to schizophrenia, 7 of the 24 patients in the study had other diagnoses. Of the 17 schizophrenics, only one had a diagnosis of non-paranoid schizophrenia, which is the classification suggested by previous work to be at greater risk for gluten sensitivity (Singh, 1979). On top of that, the population was highly chronic and one in which likelihood of response to any form of treatment would be small.

We conclude, therefore, that the study is not a valid test of the gluten hypothesis of schizophrenia and that the conclusions reached by the authors with regard to the hypothesis are not warranted. In an area of such importance as schizophrenia, this

hypothesis represents one of the few viable notions of aetiology and a new treatment approach. It deserves to be investigated thoroughly and with carefully designed studies in which adequate provisions are made for the heterogeneity of this condition (Singh & Kay, 1976; 1983).

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Psychiatric Disorder in the General Hospital

SIR: Mayou & Hawton (*Journal*, August 1986, **149**, 172–190) are right in asserting that there have been few systematic studies about differences in the prevalence of psychiatric disorder in the many types of in-patient and out-patient units within the general hospital. The paucity of data is most apparent in the setting of emergency departments. In a descriptive study of psychiatric emergencies in a general hospital setting, we studied 352 patients presenting psychiatric emergencies over a four-month period (1.86% of all attenders). Only 26 (7.4%) of these patients were already registered with the outpatient services of the psychiatry department, the rest being new patients. The case detection increased by 550% with the continuous presence of a psychiatrist in the emergency room—in contrast to "on-call' cover. Inaccuracies of identification were made by non-psychiatric physicians in approximately 14% of cases. Despite detection, physicians had the tendency not to refer patients to the psychiatrists-on-call. In only 34% of the patients screened, were the non-psychiatric physicians able to make a correct diagnosis of the psychiatric illness. In two-thirds of all patients, non-psychiatric physicians were unable to suggest any management for the psychiatric emergency.

Males outnumbered females in a ratio of 2:1. The majority of the patients (77%) were referred to emergency services by relatives and friends or patients themselves. Two-thirds of the patients were brought owing to the severity of the clinical condition and the rest, one-third, for medico-legal and social reasons. Approximately 80% of our patients sought consultation within one month of the onset of the illness episode. About 40% of those using psychiatric emergency services had long-standing problems of more than one year's duration. Only 10% had a history of hospitalisation for psychiatric illness in the past; and only 20% of the patients had visited emergency services more than once in the past one year. Thirty-one per cent had neurotic disorders, 26% had functional psychotic illnesses and 18% had alcohol-related problems.

There is considerable psychiatric morbidity in the emergency-rooms of general hospitals, much of which is unrecognised by non-psychiatric physicians. There is a need for improved research designs in studies of the epidemiology of psychiatric emergencies in general hospital settings, as psychiatric emergency services represent one of the chief entry points into the network of mental health services.

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Hydroxylated Metabolites of Tricyclic Antidepressant in the Elderly

SIR: We read with interest the report by Kutcher *et al* (*Journal*, June 1986, **148**, 676–679). These findings are consistent with our own experience with nortriptyline in a similar population.

Like 2-hydroxydesipramine, the 10-hydroxylated metabolite of nortriptyline is pharmacologically active (Bertilsson *et al*, 1979). In elderly depressed patients, average unconjugated plasma concentrations of 10-hydroxynortriptyline are higher than in younger patients taking equivalent doses, despite comparable concentrations of plasma nortriptyline (Young *et al*, 1984). There are also marked inter-individual differences in plasma 10-hydroxynortriptyline/nortriptyline ratio in this population. We reported development of symptoms and signs of congestive heart failure in an elderly patient with moderate plasma nortriptyline concentrations but high plasma 10-hydroxynortriptyline (Young *et al*, 1984). We also noted that, in 18 geriatric depressed in-patients, plasma 10-hydroxynortriptyline concentrations or combined plasma 10-hydroxynortriptyline and nortriptyline concentrations, but not plasma nortriptyline concentrations alone, differentiated